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## ROSY OUTLOOK

In 2000, Y2K project managers like Kelly Services' Kyle Duncan may have their pick of hot jobs in e-commerce or other key projects. Skills Scoop, page 84



## VISUALIZE THIS

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OCTOBER 11, 1999

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**TIMOTHY MCVEIGH WAS ABLE TO GET INFORMATION ABOUT BUILDING A BOMB OFF THE INTERNET, SO WE HAVE TO BE CAREFUL ABOUT WHAT WE POST.**

RONALD ORWIG, ON E-COMMERCE CONCERNS AT ERSION-BUCKFORD CO., A SIMSBURY, CONN., EXPLOSIVES MANUFACTURER.  
SEE PAGE 24.

## AT DEADLINE

### IBM Shuttles PC Unit

IBM last week folded its consumer PC division into its Personal Systems Group. A spokesman declined to elaborate on the reasons for the move, which didn't surprise analysts in light of the PC group's loss of nearly \$1 billion last year. IBM "has never been that successful in the PC consumer market," said Andy Brown, a research analyst at International Data Corp. in London. Layoffs are expected.

## Philips Kills Nino

Philips Electronics NV in the Netherlands will discontinue its Windows CE-based Nino handheld computer line, a company spokesman said last week. The company plans to concentrate on small video and data products such as smart phones instead.

## Xerox Fires Surfers

Xerox Corp. last week fired about 40 employees for "excessive misuse of the Internet," a company spokesman confirmed. Dismissed employees were viewing pornography Web sites, gambling and buying goods. About four-fifths of Xerox's 52,000 employees in the U.S. have access to the Internet.

## New CEO for Gartner

On the eve of his big Symposium/Expo conference in Orlando this week, Gartner Group Inc. named Michael Fisher to take over as president and CEO. The 34-year-old Fisher replaced William Clifford, who left the Stamford, Conn., consulting company to join an Internet start-up. Fisher has been at the company for seven years and became its chief financial officer in February.

## Novell, AOL Offer Corporate Chat

Novell Inc. and America Online Inc. last week joined to launch Internet, an instant messaging product for corporate use. The software is compatible with AOL's instant Messenger and is integrated with Novell Directory Services and Digitial's electronic identity card.

# CA and CSC Sign Truce, Renew Ties

CSC gains access to Platinum tools as companies end takeover-related lawsuits

BY SAM LEE

COMPUTER Associates International Inc. and Computer Sciences Corp. (CSC) publicly buried the hatchet last week, calling off pending lawsuits against each other and announcing an expansion of their global software licensing agreement.

The lawsuits stemmed from CA's attempt last year to create an experienced professional services division by acquiring El Segundo, Calif.-based CSC. CSC fought off the takeover in a bitter and litigious battle

with the Islandia, NY-based enterprise management software giant.

The new agreement is an expansion of a 1995 strategic alliance between the companies. It brings to CSC and its customers the fruits of CA's June acquisition of Platinum Technology Inc. CSC can now license Platinum's tools, which include sophisticated database and systems management software.

Analysts said it's a win-win situation. "It stops sapping resources that could be better used to develop software and support," said Michael Dorch,

an analyst at Robert France Group Inc. in San Francisco.

CSC's agreement with Platinum included few tools, a CSC spokesman said. "Now we can offer the whole range. It's one more arrow in our quiver."

### Service Is What Counts

But customers might not know the difference. Operations that oil company Conoco Inc. in Houston outsources to CSC are completely handled by CSC, said Brent D. Meyers, a Conoco information technology manager.

Still, some IT managers may reap tactical rewards.

"If I'm a CIO who's been looking at CSC to do some outsourcing but holding back because I'm using CA tools, this has got to knock out those final

objections," Dorch said.

The year-and-a-half-long drama is not unlike the battle that followed CA's takeover attempt of Electronic Data Systems Corp. in 1991, said Jonathan Eunice, an analyst at Illuminata Inc., a consultancy in Nashua, N.H. When the dust from those suits and counter-suits settled, the two companies "came together and did some really good work around [CA management and application development software] Unicovert TNG and Jasmine," Eunice said.

Such dramas "are fun to watch, but companies make more money working together," he said.

The suits had been trickling to an end. In August, the U.S. District court in Los Angeles dismissed claims brought by CSC against CA, finding no evidence that CA had used confidential CSC information in its takeover attempt. The court also dismissed CA's counter-claims against CSC for interference with the tender offer. ■

## Online Start-Ups Snap Up Off-Line Distributors

But IT upgrades may be needed, some say

BY CRAIG STEGEMAN

Since Living.com Inc. began selling home furnishings on the Web in July, its furniture

drew Kass, director of technology at Living.com in Austin, Texas. "They weren't a very high-tech company. They had no need to be one [before]."

Living.com installed new PCs and hooked the facility in Randleman, N.C., to a central server that runs Oracle Corp.'s Web-based enterprise resource planning applications. But being able to take advantage of the logistics and customer service operations that Shaw Furniture Galleries had in place for its own mail-order catalog business was worth the effort, Kass said.

Other e-commerce start-ups are finding themselves in the same position. Working with established distributors can help online retailers get up and running faster than the logistics side, but the brick-and-mortar companies may need

some serious IT upgrades.

Tom McGovern found that out after his online pet-supply company, then called PetJungle.com, bought a small distributor in Southern California last spring. The original plan was to build that up into a full-blown warehousing and shipping operation.

"We were going down that path fast and furious," McGovern said. "But it would have literally required years. And a lot of our dough would have been caught up in there."

Two months later, opportunity came knocking in the form of pet-supply retail giant Petsmart Inc. The two companies set up an online joint venture that processes the vast majority of its orders through a state-of-the-art Petsmart distribution center in Rochester, N.Y.

"Our little operation pales next to that," said McGovern, who is now CEO of the Petsmart.com joint venture in Pasadena, Calif. And leaving the logistics to Petsmart let the online company focus on its Web site instead of on managing product inventories, he added.

EnNutrition.com Inc., which

began selling vitamins and nutritional supplements online last March, wrote a custom order management and shipping application in Visual Basic so a distribution company that it's working with can handle the expected order volumes.

Jared Wolfe, director of operations at EnNutrition.com, which is based in Woodland Hills, Calif., said it is now mulling the idea of licensing the software to other online retailers that want to use brick-and-mortar distributors. ■

## Clarification

In a Sept. 20 News brief ("Software Vendor Cancels MCI Outage," page 4), an MCI WorldCom Inc. spokeswoman said all MCI customers would receive a credit whether they were affected by an August frame-relay outage or not. On Friday, spokeswoman Debbie Caplan said the 20-day credit applied only to customers of MCI WorldCom's legacy WorldCom frame-relay network. "All customers served by the legacy WorldCom frame-relay platform were proactively issued a 20-day credit on the September invoice," Caplan said in a statement.

### JUST THE FACTS

## Online Logistics

The available checklist:

Online retailers can build their own warehouses and distribution centers, but established distributors or sign deals with package carriers and other companies that provide logistics services.

Consulting factors:

Building it yourself takes time and money and forces you to manage inventory brick-and-mortar distributors may not be ready to handle online sales volumes. Existing firms may not be geared to your industry.

help online retailers get up and running faster than the logistics side, but the brick-and-mortar companies may need



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# Feds Want Industry To Help Protect Data

**But FBI says U.S. first must fix government security, fend off Russian cyberattack**

BY PATRICK THIBODEAU  
WASHINGTON

FEDERAL OFFICIALS say they need private sector buy-in to protect critical public and private information systems. But the officials also acknowledged at a congressional hearing last week that they must first take care of their own security problems, including an ongoing cyberattack that is originating out of Russia.

Testifying before a U.S. Senate Judiciary subcommittee last week, Michael Vatis, a deputy assistant director at the

FBI and director of the National Infrastructure Protection Center, confirmed a published report of an ongoing attack originating out of Russia aimed at government networks. The attacks have captured "unclassified but still-sensitive information" about defense-related matters, he said.

But of equal concern to the Subcommittee on Technology, Terrorism and Government Information is the ability of private industry to deal with threats. With so much of the nation's critical infrastructure in private hands, a national plan to improve the federal

government's information security, slated to be released in several weeks, will call for improvements in computer security at private companies.

Vatis said private systems have "significant vulnerabilities" to attacks. "But we shouldn't act as though the private sector doesn't have its act together and the government does," he added. "There are also significant vulnerabilities in government."

The plan is being prepared by the Critical Infrastructure Assurance Office (CIAO), a U.S. agency that's coordinating federal information security planning. The plan will seek the buy-in of private companies, largely through educational and outreach efforts instead of new laws and

regulations [News, July 12].

Peter Browne, a senior vice president at First Union Corp. in Charlotte, N.C., said a cooperative approach between the public and private sectors will be more effective than a new government bureaucracy. The key is to "hold people accountable for implementing those standards," he said.

And one of the best vehicles for ensuring that a firm is following best security practices is to have its board question company officials about security, usually through an audit committee, Browne said.

Stash Jarocki, corporate information security officer at the Depository Trust Co. in New York, said he hopes the national plan promotes educa-

tion, cooperation among various industry segments and "clearly defines what the government wants to do and support." A key role the government can play, he said, is funding security research efforts, such as vulnerability analysis, that can be used by private industry to improve security.

The hearing was prompted in part by disclosure in August of a plan by the Clinton administration for a massive Federal Intrusion Detection Network (Fidnet). Privacy groups warn that Fidnet will intrude on private communications. Fidnet won't monitor private networks or e-mail traffic and will involve only civilian government agencies, said John S. Triak, director of the CIAO. ■

## Feds Trust Chemical Makers To Do Right Thing on Y2K

**Some companies plan holiday slowdowns**

BY PATRICK THIBODEAU  
WASHINGTON

Although some chemical companies have decided to cut back or shut down operations as a precaution over the New Year's holiday, federal officials last week said they have no plans to ask other chemical companies to do the same.

Jim Makris, the director of the Environmental Protection Agency's chemical office, said any federal mandate to cease operations could create more problems than any Y2K failure.

"The most dangerous thing in the chemical industry is to change procedures from what you normally do," said Makris. "That creates enormous potential risk, not only in the process of shutting down but when you restart."

John Koskinen, who heads the Clinton administration's Y2K efforts, said any shutdown decisions should be left up to

the company. "The important thing is for every company to assess its own situation, its risk both in operating and in shutting down, and then come to its own independent decision," Koskinen said.

Monosanto Co. in St. Louis, for instance, a maker of herbicides and pharmaceuticals,

among other products, intends to put some of its chemical processing activities in a "pause" mode, which would prevent any chemical reactions immediately prior to midnight on Dec. 31. The company is taking that step because of the potential for outside disruptions such as power loss, said John Ogens, a company spokesman.

Companies that mainly make chemicals via batch processes, which give manufacturers greater control over the timing of production processes, will be helped by the holiday.

For instance, at Rohm & Haas Co., a Philadelphia-based maker of specialty chemical products, plants are usually shut down during the holiday period for routine maintenance, said Carmen Ferrigno, a company spokesman. At a Houston plant that will be operating, production will be slowed, but that is typically done over the holiday, he said.

But federal officials have little information about the Y2K readiness of small to midsize chemical makers and handlers and continue to urge local government preparedness committees to contact local chemical producers and handlers. ■

## Status Report

■ Federal officials are worried about the Y2K readiness of small chemical firms, but most small chemical makers use manual batch processes that typically aren't affected by Y2K.

■ Large chemical companies are making good progress.

■ States and local communities need to determine the readiness of local chemical makers and handlers.

**\$17 MILLION IN TRAINING** and scholarship grants for federal workers of college students willing to work for federal agencies in exchange for the money

**\$4.4 MILLION TO SET UP** an intrusion-detection system for all federal, nondefense agencies

**THE CREATION** of an "expert review team" with a \$5 million budget to analyze federal cybersecurity

## Banks Plan Net to Share Security Info

BY ANN HARRISON

The U.S. banking industry has created a private computer network to exchange information about viruses, software bugs, attack trends and other security threats.

The network, operated by the Financial Services Information Sharing and Analysis Center, is the outgrowth of a directive from the Presidential Commission on Critical Infrastructure Protection to help shield crucial industries from cyberattacks.

"Such information will be shared anonymously to encourage candor and on a real-time basis to allow other firms to prepare immediately for similar attacks," Treasury Sec-

retary Lawrence H. Summers said in an Oct. 1 statement.

The U.S. Department of the Treasury, which helped organize the center, said it won't eavesdrop on threat information.

Steve Katz, chief information security officer at Citigroup Inc. in New York, is a center coordinator. Katz said the center is encouraging financial services firms to join the network to speed security information.

The center is the first of eight such operations that will monitor computer security threats for industries including telecommunications, oil and gas, electric power, transportation and water utilities. Licensed banks and government-regulated financial firms will pay \$13,000 to \$25,000 to subscribe to the network, which will issue alerts to security managers. According to the Treasury Department, 16 financial institutions with a total of \$4.5 trillion in assets have joined the network. ■

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## BRIEFS

## Oracle Touts Web 'Portal-to-Go'

Oracle Corp. this week plans to announce software that will let consumers and other users access Web-based applications through handheld computers and cell phones, CEO Larry Ellison said during a keynote speech at the Fall Internet World conference in New York. The Portal-to-Go product will be marketed to operators of wireless networks and Internet service providers.

## Many Users Plan Y2K Lockdowns

Half the companies responding to a recent survey said they will impose a year 2000 freeze on installing new systems or enhancing old ones. The study of 96 companies was conducted by the Cutter Consortium, a research firm in Arlington, Mass. About 56% have already imposed an enterprise-wide lockdown or plan to soon begin one that will vary through year's end. The purpose is to better safeguard computer environments Y2K-ready by not introducing changes to existing software code or hardware.

## Boeing Taps New CIO

The Boeing Co. last week named 29-year Boeing veteran Steve Griffin as CIO. He replaces Terry Mitchell, who left Boeing last month to become CIO of Electronic Data Systems Corp. in Plano, Texas. Griffin joined Seattle-based Boeing in 1978 and most recently was vice president of e-commerce at Boeing Commercial Airplane Group.

## Mazda Outsources IT To IBM in \$480M Deal

Japan-based Mazda Motor Corp. will outsource most of the development and operation of its information systems to IBM Japan in a deal worth approximately \$480 million over 10 years. IBM Japan will be responsible for the development, operation and maintenance of Mazda's host systems, supercomputers, 10,000 PCs and network infrastructure in all areas except research and development.

## Users Not Sold on App Service Provider Model

Show goers cite security, bandwidth issues

BY MARC FERRANTI  
IN YORK

THE APPLICATION service provider concept touted heavily at Fall Internet World was not an attractive business proposition for any size company, users said. But most said they are nonetheless going to think long and hard before they let third parties host their applications.

"I try to get projects done under budget and on time, and if someone tells me I can get a project done the way it's supposed to be done using a third-party provider to host applications, sure — I'm willing to listen," said Warren Winter, an information technology manager at pharmaceutical giant Pfizer Inc. in New York. "But it's got to be proven that there is a benefit to me, and I'm not sure big companies like IBM, with the margins they need to make projects worthwhile for them, are going to be able to offer me cost benefits."

The basic idea behind the application service provider computing model is that a provider hosts and manages applications that users then access over the Internet.

Many users said they would be glad to hand over to a third party the hassle of upgrading and maintaining software. But in addition to questions about cost benefits, they also have concerns about security, bandwidth and the psychological hurdle of moving from "owning" applications to "renting" them.

At the show, the application service provider concept was embraced by IT companies like IBM, as well as telecommunications companies such as AT&T Corp., Global Crossing Ltd. and Bell Atlantic Corp. For example, Global Crossing announced that it's building new data centers in the U.S. and Europe. Bell Atlantic CEO and Chairman Ivan Seidenberg

said his company will offer hosting of business-to-business Internet applications. IBM and AT&T questioned they would offer turnkey e-commerce applications (see story, page 2B), and Oracle Computer Corp. CEO and Chairman Larry Ellison made application service provider announcements as well (see story, page 2B).

Before they adopt these service provider offerings, however, users said questions about data security must be answered, especially for businesses like insurance compa-

nies that deal with sensitive personal data.

"It might reassure companies if they could maybe partition the application itself from the data and keep the data in-house," said Winthrop Robinson, director of technical services at W. R. Berkley Corp., an insurance holding company in Greenwich, Conn.

Bandwidth is also a problem, despite the strides being made by telecommunications companies to lay high-speed IP infrastructure, according to some users here.

"Even a T1 line to a third-party ASP won't give you the response you need when you're dealing with applications involving three-dimensional imaging," said Steven

Luo, an engineer at Pitney Bowes Inc. in Shelton, Conn.

Pitney Bowes now uses an application service provider to host, manage and update an application that automates search for components and appropriate component suppliers, Luo said. "We were dealing with updates that took something like 50 or 60 CDs a month. It was too time consuming," he said.

On the cost-benefit side, several users said that the benefits of using an application service provider might be more immediately apparent for small and midsize companies than for large companies.

"We don't have the money to buy a \$150,000 purchasing and receiving application, though I'd love to have one," said Andrew Bosak, treasurer at the Halmak Group, a small construction contractor in Harrisburg, Pa. "If we could get someone else to provide one for us at a reasonable monthly fee, I'd be interested."

## Web Management to Lead Outsourcing Growth

In-house expertise lacking, study says

BY STACY COLLETT

As companies scramble to launch e-commerce sites or link all aspects of their business through the Web, many are finding they don't have the skills or resources to keep up with technology changes or scalability demands.

So, many information technology departments are outsourcing Internet management functions such as Web hosting or building Web interfaces to back-end systems (see story, page 1).

Internet management outsourcing will grow 76% annually between 1998 and 2003, according to a study by market research firm Input in Mountain View, Calif. That dwarfs the 22% annual growth expected in the overall U.S. outsourcing market, which will reach \$180 billion by 2003.

The second fastest-growing segment, business process outsourcing, is expected to grow 29% annually, the study said.

"Companies can't afford to spend a z amount on hardware

Up and Out  
Outsourcing annual growth through 2003

and take the risk that in a short period of time, it's inadequate," said Albert Nekimkin, an Input analyst and author of the study. "It's much safer to hire an outsourcer who can service your needs."

Telecommunications and utility companies in particular are seeking outside help for Internet management, Nekimkin said. Faced with deregulation and a push toward Internet billing and customer service, the market for Internet management outsourcing will grow 33% annually in the telecommunications industry and 29% annually in the utilities industry, the study said.

"Ultimately every one of our

proposals is exploring the option of outsourcing," said John Berry, a vice president at AppNet Inc., a Bethesda, Md.-based Internet services company. Large customers are looking to outsource their electronic operations from soup to nuts — from Internet data centers, Web hosting and integration to back office, fulfillment and inventory systems. "IT shields companies from relentless technology upgrades," he said.

International Data Corp. (IDC) in Framingham, Mass., said it expects the outsourcing market to grow at just 13% annually. It hasn't separated Internet management from other types of IT outsourcing. But analyst Cynthia Doyle said the segment is likely to take off. "A lot of companies know if they don't get in the game, they're going to be left behind. If they don't have the expertise, they'll have to outsource it," she said.

IDC expects corporate Internet spending to grow 39% per year through 2002. ■

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## Baan Readies Tools For Integrating ERP Companion Apps

BY CRAIG STEEDMAN

Baan Co. next month plans to announce software that is supposed to deliver long-promised

links between the company's enterprise resource planning (ERP) system and the slew of companion applications it ac-

quired in the past few years.

At a user conference starting Nov. 10 in Vienna, Baan is expected to unveil an upgrade

of its ERP software, along with application integration tools that can be used to tie its products together, according to

sources close to the struggling Barneveld, Netherlands-based vendor.

That kind of technology is critical to users who want to expand their Baan back-office systems to incorporate applications such as supply-chain planning and customer relationship management.

### May the Best Product Win

Simplex Time Recorder Co., a maker of fire alarms and other security devices in Gardner, Mass., expects to finish a rollout of Baan's ERP software in the spring.

It then plans to start adding supply-chain and front-office tools that can manage interactions with customers and suppliers, said Jim Nickerson, director of applications development and Baan program manager at Simplex.

Baan would likely be the leading candidate for those additional applications if its integration promises are being met, Nickerson said.

"I'd rather stay with a vendor that has everything integrated," he said. "But if Baan doesn't, I'm going to go with the best product."

Baan acquired a mix of planning, customer management, finance and product configurator applications during a buying spree that ended last year when it began a string of four straight quarterly losses. It is also developing a new line of e-commerce software.

But Baan still has to prove to users that the different applications aren't "just a bunch of stand-alone products with kludgy interfaces," said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif.

Baan officials wouldn't comment on their plans. But sources said the vendor is aiming to ship by year's end a BaanERP upgrade that can be integrated with its other products.

David Dobrin, an analyst at Benchmarking Partners Inc. in Cambridge, Mass., said he doesn't expect Baan to fully deliver on the integration it promised anytime soon. But the new software should get Baan to parity or better with its ERP rivals, Dobrin said.

The first steps are expected to include a consistent data model that eliminates the need to translate between the different applications, he added. ■

SOFTWARE

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# Exchange Beta Goes Beyond Messaging

*Few users ready to implement features such as Web Store*

BY DOMINIQUE DECHRYN  
ATLANTA

**E**XCHANGE 2000 is the most ambitious release yet of Microsoft Corp.'s messaging server. But few users are ready to implement new features such as real-time collaboration and the Web Store.

Six thousand messaging professionals got their first look at Exchange 2000 at the Microsoft Exchange Conference here last week, where Microsoft rolled out the first pub-

lic beta version of the product. Exchange 2000 — formerly code-named Platinum — is scheduled to ship in the first half of next year.

A central component is the Web Store, which Microsoft bills as a repository to store e-mail, end-user documents, Web pages and multimedia.

"They're finally establishing a vision beyond e-mail," said Tom Austin, an analyst at Gartner Group Inc. in Stamford, Conn. Recent market research from International Data Corp. in Framingham, Mass., has Microsoft ahead of Lotus Development Corp.'s Domino in new deployments for the second quarter. But more than 90% of Exchange sites still use it just for messaging, Austin said.

The Web Store is "neat stuff... that we're not going to be able to implement any time soon," said William Weiler, an analyst at Dow Chemical Co. in Midland, Mich. He said moving end-user files off file servers and onto the Web Store would require "a lot more Exchange Servers out there." It may also make backing up user files harder to do, said Daniel Lyden, a network developer at Office Depot Inc. in Delray Beach, Fla., who also said Exchange 2000's video- and data-conferencing features will clash with "the reality of wide-area network speeds."

Austin said the Web Store will take off only if enough independent software vendors develop third-party applications on top of it.

Richard King, senior network engineer at Brach's Confections Inc. in Chattanooga, Tenn., said deployment of Exchange 2000 would have to wait until the

## Adding Exchange 2000 Features

The product will boost the capabilities of several areas:

FEATURE	WHAT IT DOES
<b>REAL-TIME COLLABORATION</b>	Instant messaging, multi-point data-, audio- and videoconferencing
<b>WEB STORE</b>	Rich data store accessible through Outlook 2000, Office 2000, a browser, OLE DB and Win32 file I/O
<b>ENHANCED SECURITY</b>	Access configured per item and per column (instead of per folder)
<b>SCALABILITY</b>	Four-node clustering with load balancing; ability to partition several message databases on one server
<b>MANAGEABILITY</b>	Managed centrally from Microsoft Management Console, integrated with Active Directory

company completes its rollout of Windows 2000, now planned for the end of next year. A delay in the rollout of Windows 2000 would push Exchange 2000 implementation even further back, King said.

But Mikael Bergman, project manager at Volvo Information Technology AB, which provides information technology services to Swedish truck mak-

er Volvo Group, said he's eager to get his hands on Web Store. He said he had planned to roll out Exchange 3.5 early next year but may instead wait for Exchange 2000.

Bergman said Volvo is likely to use the Web Store for storing "almost everything," including end-user documents that are now stored on Novell Inc. NetWare servers. ■

## Third-Party App Developers Warming to Exchange

*Vendors roll out collaboration tools*

BY DOMINIQUE DECHRYN  
ATLANTA

Microsoft Corp.'s Exchange Server has been slow to emerge as a platform for third-party applications. But that's changing as the growing user base of the Outlook client is raising interest in third-party applications for Outlook and Exchange.

At the Microsoft Exchange Conference here last week, several vendors rolled out new or updated tools that run on Exchange. Many of them simply added management or spam- and virus-filtering features to the messaging server.

But more tools are offering document management and group collaboration features. PortaSoft Technologies Inc. in Albuquerque, N.M., launched a sales- and project-tracking application based on Exchange, and Eastman Software Inc. in Billerica, Mass., introduced a suite of imaging and document

management software.

"Everyone is familiar [with Outlook]," said Andy Potterson, business manager at Tampa, Fla., law firm Holland & Knight LLP. The firm is implementing a new labor-tracking tool from Kronos Inc. in Waltham, Mass., that will let staff clock in and out from Outlook, which they already use for e-mail and calendaring.

Tom Austin, an analyst at Gartner Group Inc. in Stamford, Conn., said Exchange has attracted less third-party software development than Lotus Development Corp.'s Domino, but that is starting to change.

One concern is that Microsoft could add features that would compete with third-party products. For instance, Microsoft's indexing and search technology, code-named Tahoe, is expected to enter beta testing in the first half of next year.

Gyris Baraduch, lead product manager for Exchange at Microsoft, said the company talked to partners about Tahoe a year ago and will always give ample notice of its plans. ■

## Microsoft Seeks Directory Interoperability

*Pursues ties to NDS; some questions linger*

BY DAVID OREMETZIN

Microsoft Corp. last week released tools designed to synchronize its upcoming Active Directory with Novell Directory Services (NDS), but observers remained skeptical Windows 2000 will provide a well-integrated metadirectory.

The second beta of Microsoft Directory Synchronization Services became available on the Web, and Version 2.1 of Zoomit VAs metadirectory became available for free last week to customers of trained consulting outfits such as Microsoft Consulting Services. Microsoft said the releases were six months ahead of schedule. The company acquired Toronto-based Zoomit Corp. in July.

Integration with other directories is crucial to administrators of enterprise networks because other directories are far

too numerous to simply be replaced. Peoria, Ill.-based Caterpillar Inc. has hundreds of directories that need to be synchronized, said Don Bowen, directory architect. Caterpillar has been urging vendors for years to provide metadirectory software to give it a single place to manage all its distributed directories. Doing so would drastically reduce costs and free administrators to do other work, Bowen said.


The Microsoft releases will give Windows 2000 customers the chance to begin testing and learning about two-way synchronization of user and network data with NDS, but it still falls short of making Active Directory a fully capable technology, said analyst Laura DiDio at Giga Information Group Inc. in Cambridge, Mass.

Integration of VAs 2.1 with Windows 2000 and enabling

easy policy-based networking and other essential directory management features is still in Windows 2000's future, DiDio said. Meanwhile, users will have a raw product requiring third-party tools and a lot of help from Microsoft. "It's a very, very difficult task, which is so far from being trivial," she said.

And not every user wants to rely on Microsoft. Basic synchronicity between NDS and Active Directory will be a must for the Washington State Hospital Association when it decides to adopt Windows 2000, according to Richard Haynal, the association's network administrator. The association currently uses NDS, but Haynal said users face risks when they rely on the vendor of a particular directory to offer synchronization with competing directories.

"I will feel better if the synchronization is being done by a third party," he said. ■



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## BRIEFS

## Minor Glitches Hit Four Fed Agencies

The President's Council on Year 2000 Conversion reported that four federal agencies had minor problems when their financial systems rolled over from fiscal 1999 to fiscal 2000 on Oct. 1. The affected agencies were the Department of Justice and the Department of Energy, the Federal Aviation Administration and the National Science Foundation.

## Merck, CVS Alliance

Pharmacy benefits manager Merck-Medco Managed Care LLC and drugstore chain CVS Corp. had week formed an Internet alliance. Worcester, R.I.-based CVS will not ever offer the products on MerckMedco.com, which administers and controls prescription benefits for 31 million members. Merck-Medco, in Franklin Lakes, N.J., will let members order prescriptions on the CVS.com site.

## IBM Updates NT Suite

IBM has released an updated application suite for Windows NT. The enhancements include Lightweight Directory Access Protocol directories featuring new synchronization agents and sample applications, as well as Version 8.1 of DB2, MQSeries 5.1 and Lotus Domino 5.0. New examples include an intranet-based application for human resources departments. Pricing for the server product is \$2,499; clients cost \$225 per unit.

## States' Fed Benefits In Y2K Jeopardy

At least 13 states, plus the District of Columbia, are at high risk of missing year 2000 failures in federal benefit programs, the U.S. House Subcommittee on Government Management, Information and Technology reported last week. Those programs include child support enforcement, child nutrition, food stamps, Medicaid and unemployment insurance. Among the states that are behind in repairs are New Hampshire, New Mexico, Alabama, Alaska, Massachusetts, North Carolina, California, Illinois, Utah, Nebraska, Maryland and Georgia.

## UPS Brings the Web To Its Customers

Package carrier one-ups rivals, ensuring that its 1.7M users can use online features

BY LEE COPLAND

LOOKING FOR AN EXTRA measure of added value, United Parcel Service of America Inc. plans to do the role of Internet service provider and offer free, albeit fenced in, online access to anyone who wants it.

The Atlanta-based package delivery carrier distributed 4,500 beta CDs of Microsoft Corp.'s Internet Explorer 5.0 Web browser with UPS branding and dial-up access to [www.ups.com](http://www.ups.com) via an 800 number. Unlike an Internet service provider, however, users are restricted to UPS Web pages. The initiative will be formally launched in January.

"What we found most re-

cently is that most employees have PCs and modems, but Internet access is still an issue," said Steve Turbett, e-commerce marketing director at UPS. "Many individuals don't have access at all the workstations where it would be useful."

UPS research showed that many desktops such as those in corporate mail rooms, reception areas and other departments often lack Web access. The company is extending Web access to its 1.7 million customers and will offer the service to lure new customers as well.

In addition to tracking shipments, customers can calculate shipping costs, ship packages, look up their address book and shipping history,

## JUST THE FACTS

## UPS OnLine World Link

What is it? Free service gives UPS customers Web access restricted to [www.ups.com](http://www.ups.com). It's aimed at companies that want to use the UPS Web site but don't want or have full Internet access.

Where is it available? Free dial-up service software packaged with Microsoft's Internet Explorer 5.0.

When is it available? Limited beta program now full program launches in January.

request pickup or drop-off locations and order UPS supplies, such as envelopes and shipping labels.

"There are a lot of people that don't have access to the Internet now and won't have access anytime soon," said industry analyst John Fontanella at AMR Inc. in Boston. "UPS

saw [lack of access] as an impediment to customer service."

By giving new and potential customers Internet access to its services, UPS hopes to impact its bottom line, cut costs and play up its Web service assets in the increasingly competitive package delivery market.

Torbett said UPS realizes a 15% revenue gain from electronic-access orders because customers tend to ship more packages when they're online. UPS officials also said online shipment status queries cost only 10 cents, compared with a cost of \$2 per call for customer service representatives to field those requests. The company's Web site receives 1.1 million package-tracking hits per day, up from just 400,000 last year.

By offering customers Web access to its services, UPS also hopes to gain ground against competitors such as FedEx Corp., Federal Express Corp.'s parent company in Memphis.

"For all big package carriers, IT is the differentiator," said Fontanella. "Otherwise, it's a commodity service and they compete on price alone, which is a losing proposition." ■

## DigitalMe Foundation Solid, But Adoption Unclear

Novell's e-customer ID site needs user, merchant buy-in

BY DAVID GREENSTEIN

Novell Inc.'s DigitalMe initiative to identify and authenticate users online has a solid technical foundation in Novell Directory Services (NDS), analysts said, but widespread adoption by consumers and e-commerce sites is hardly certain.

Novell is a top-notch enterprise vendor, said Keith Butler, vice president at Octix/Deput.com in San Francisco, but it has little experience or cachet with consumers. "Trust and certification is pertinent to the brand as much as anything," he said. "It remains to be proven and adopted by consumers on enough of a broad base."

But the service, announced last week, has convenience

benefits, said Harry Fenik, an analyst at Zona Research Inc. in Redwood City, Calif., and could even make online transactions more secure and easy to manage. "I think this is a very intriguing idea," he said.

In theory, he said, e-commerce sites such as a user's bank, credit-card company and

## JUST THE FACTS

## DigitalMe

What is it? Users register personal information at DigitalMe.com. They can then log on to Web sites; personal information is automatically filled in on forms. The code that accomplishes this resides on DigitalMe servers, hosted by Santa Clara, Calif.-based Easton Communications Inc.

When is it coming? Service became available to consumers last week. The development tool kit for site developers will become available within the next month.

Who's on board? Novell's partners include America Online, VeriSign, Citigroup and Compaq.

favorite store would implement DigitalMe on its servers, allowing consumers to share only the information they choose with each company. Transactions among the different companies could be carried out in the consumer's name without any of the companies needing all the consumer's information or transferring sensitive data over the Internet.

Novell's stated hope is to sell NDS and the DigitalMe development tool kit to e-commerce sites and Internet service providers. Meanwhile, it will release the source code of the system's interfaces so that DigitalMe can be viewed as an open standard. Although opening up source code will enable other directory providers to eventually offer similar services and cut into NDS's sales, Novell is more likely to sell DigitalMe as a concept if it's open, Fenik said.

Analyst Richard Villars at International Data Corp. in Framingham, Mass., said NDS runs on several platforms and can handle millions of objects, giving it adequate scalability.

"It should be able to support this," he said.

But there is more to making DigitalMe work than just the directory tool that would manage it. The company has to show that it understands how to manage information about consumers and run a service over the Internet, he added.

Also, many companies will have to be sold on the idea that this is a better way to solicit and manage customer information than the systems they have already implemented to do just that, Villars said.

Cyrus Khosravi, vice president of technology at Palo Alto, Calif.-based Wine.com, said the company is not a Novell customer now and isn't looking to be one, unless consumers demonstrate that they strongly prefer DigitalMe's service. He said the company will certainly begin evaluating DigitalMe as well as Microsoft Corp.'s similar Passport consumer authentication service. ■

## MORE ONLINE

For articles, books and other resources related to NDS, visit our Web site: [www.computerworld.com/novell](http://www.computerworld.com/novell)



Continued from page 1

## H-1B Miscount

"We're working with [Congress] on a compromise on what to do with those excess H-1Bs," an INS spokeswoman said. "We're not quite sure what could happen with them."

In the past, when the number of visa petitions has exceeded the number of open spots, the INS has OK'd them but applied them to the following year's count (see chart). Last year, for example, more than 19,000 people were approved after the then-cap of 65,000 was reached. Those 19,000 were then applied to 1999's cap.

But observers said, mistak-

only granting 10,000 or 20,000 extra applications is different.

"This is one of the biggest hairy mistakes I've ever seen before," said Carl Shusterman, an immigration lawyer in Los Angeles. "If they count them toward [fiscal 2000's] quota, then things are going to be more dire this year than we thought they were."

The INS first suspected the problem in June and worked through the summer to confirm it, the INS spokeswoman said. The agency suspects faulty software caused approved petitions to "disappear" and to miscount revoked visas, she said. The INS uses a proprietary mainframe system called Claims and is in the process of upgrading a version four to five years old, she said.

The upgrade isn't the culprit, she said, because errors were discovered in offices running the old software.

The agency is looking for an outside auditor to investigate, she added.

Last week, the agency met with Sen. Spencer Abraham (R-Mich.) and Rep. Lamar Smith (R-Texas), who are on committees that oversee the INS, to decide on the next steps, she said. No decision had been reached at press time. A spokesman for Smith acknowledged there was "a private conversation" with the INS on the matter. Abraham's office wouldn't confirm the meeting, but the senator sent a stern letter to the INS last week questioning whether it can borrow against visas for 2000.

YEAR	CAP	WHEN CAP WAS HIT	APPROVED APPLICATIONS APPLIED TO THE FOLLOWING YEAR'S CAP
1997	65,000	Sept. 1, 1997	5,099
1998	65,000	May 11, 1998	19,431
1999	115,000	Aug. 14, 1999	10,000*

The recently uncovered glitches mean companies looking overseas for technical workers will likely have far fewer chances to hire this year.

"If they made a mistake and punish companies for it this year, that will generate heat," said Harris Miller, president of

the Information Technology Association of America (ITAA), an industry trade group in Arlington, Va.

The INS should grant the full complement of 115,000 new H-1B visas and not deduct its 1999 error from 2000's limit, Miller said. ■

Continued from page 1

## Outsourcing

the Internet auction site took steps to beef up reliability. The Sun Jose company, which has suffered some highly publicized outages, announced plans to expand its Web infrastructure outsourcing with Exodus Communications Inc. and a new partner, AboveNet Communications.

Barnesandnoble.com may be seven to 10 years from its outsourcing vision, but a growing number of companies — from Victoria's Secret to Reader's Digest Association Inc. — are outsourcing or considering off-loading pieces of their e-commerce operations, especially Web server hosting.

In fact, Frost & Sullivan, a Mountain View, Calif., marketing consulting company, expects the U.S. Web hosting service market to soar to \$4.04 billion this year — a 25% increase over the \$1.13 billion collected last year.

"The demands posed by e-commerce on lots of firms will force them to outsource to get the technical expertise as well as the physical and network resources that they need," said Jeanne Schaaf, an analyst at Forrester Research

Inc. in Cambridge, Mass.

But Schaaf cautioned that the Web outsourcing market is immature. "Users don't always know where to go because the Web hosting companies aren't always clear what they're about," Schaaf said.

Web outsourcing may not make sense for every company, particularly those that need to keep a tight rein over mission-critical technology. But companies that have outsourced pieces say they have benefited.

Jon Ricker, president of the technology company that services Victoria's Secret and The Limited Inc., said he considers Web server operation to be a commodity issue. He prefers to devote information technology staff time to "competitive systems" where the company can build an advantage that improves revenue and market share. So staffers did the deep integration work necessary to link the Web store with the back-office systems that operate the catalog and fulfillment operations. Inventory and pricing are checked in real time.

"Our whole outsourcing strategy... is that we're going to build world-class capability in core competencies. Where we can't, we'll partner," Ricker said.

Fingerhut Cos. also leverages the fulfillment and order-capture systems and marketing systems of its catalog operation. But the Minnetonka, Minn., company

outsourced Web site development and design work because internal staffers didn't have the necessary skills. "We want to get it done as quickly and inexpensively with as much creativity and flexibility as we can have," said Andrew Johnson, president of e-commerce at Fingerhut, which has a network of 16 Web sites.

One reason that Reader's Di-

gest — which has 20 sites, including Readersdigest.com and the just-launched Gifts.com — outsources some Web work is to stay abreast of the latest technology, said Keith Fox, director of new media.

To bring the site up to less than five months, Gifts.com outsourced work to five vendors: two for design and engineering, one for the database, another for Web hosting and a

fifth for customer service and fulfillment.

But some companies don't have that luxury. Redwood City, Calif.-based iPrint.com has complicated technology that lets customers set up business cards and other printed materials online. CEO Royal Farros said it would be too difficult to outsource. The company does, however, off-load its print jobs to third parties. ■



**BARNESANDNOBLE.COM** CEO Jonathan Bullock says his company won't be in the server business

gaining technical expertise, eliminating technology upkeep and shortening time to market.

Victoria's Secret outsources its Web servers to IBM, hoping to reap the benefits of Big Blue's experience with large-scale operations, such as the Olympics. The company tazed those IBM servers when it drew 1.5 million visitors for a fashion show webcast.

## Database Challenge Awaits Merged Travel Firms Online

BY JULIANA DASH

Last week's merger of The Sabre Group Holdings Inc.'s Travelocity.com and Preview Travel Inc. will not only combine the strengths of each company's travel services, but also their information technology staffs. Travelocity.com's president said.

Terrell B. Jones, who will become CEO of the new company that will retain the Travelocity name, said that while consumers will see one integrated Web site, each company will dedicate IT resources to different content areas. Preview Travel's HTML developers will manage vacation and cruise content, whereas Travelocity will be responsible for air, car and hotel content.

Both companies will use

Sabre as their back-end system.

Jones said some IT decisions still need to be made, such as how the companies will merge their customer databases. Travelocity uses Oracle Corp., while Preview uses Informix Software Inc.

Both Travelocity and Preview will keep their IT staffs in Fort Worth, Texas, and San Francisco, respectively. But 50 programmers and developers who now work for a division of Sabre will become Travelocity employees. Travelocity will still contract mainframe programming from Sabre.

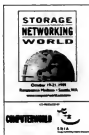
The combined firm could prove a formidable competitor against Microsoft Corp.'s Expedia, said Melissa Short, an analyst at Jupiter Communications LLC in New York. ■



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# Oracle Outsourcing ERP Applications

**Delivers its own application hosting business, rather than forming partnerships**

BY JULESHA BASH  
NEW YORK

**O**RACLE CORP. last week forged ahead with its application outsourcing service, **Business OnLine**, announcing 15 customers, including Internet start-ups like **Phone.com** Inc. in Redwood City, Calif., and professional services firms like **Century Business Services Inc.** in Cleveland. For a monthly fee, these customers will be able to access applications such as financials, human resources and others that are included in a typical enterprise resource planning (ERP) or customer relationship management suite on the Web or a private network.

And at Internet World last week, Oracle also announced partnerships with global telecommunications firms, Internet data centers, systems integrators and independent software vendors. One analyst said those moves indicate that Ora-

cle is shifting its application service provider business from the "evangelization" stage to the execution stage.

Speaking at the World Trade Center, CEO Larry Ellison argued on behalf of the economic benefits of Oracle's application hosting service, saying "Windows is no longer the most economical way to deliver software. The Internet is."

Earlier this year, Oracle and its competitors in the ERP space began marketing their application service provider offerings. Oracle's strategy differs slightly from those of competitors **PeopleSoft Inc.**, **SAP AG**, **Baan Co.** and **J.D. Edwards & Co.**, all of which are partnering with outsourcing firms instead of providing the hosting service themselves

(see story, page 8). **PeopleSoft** announced at its last user conference that it will offer its own services early next year.

Although some large companies have chosen to outsource ERP applications within specific departments, the Web

hosting service has won more converts among small and medium-size businesses that often lack the labor and capital needed to implement ERP applications and provide the required ongoing maintenance.

Pedro Mello, managing director at **InternetCo Investments**, a 20-person, Brazilian-based venture capital firm, said having the Oracle financial application hosted off-site by a third party took only one person on his staff two weeks. Installing the software would take about six months and the efforts of several people on his staff. "If I had three people working on [installing financial applications], that would be more than 10% of my workforce," Mello said. "If [the application] is taking a lot of time from me or my partner, then it's taking time away from my business."

Meredith Whalen, an analyst at **International Data Corp. (IDC)** in Framingham, Mass., said that although Oracle's recent announcement highlighted the most aggressive application service provider strategy among ERP players, it's too early to calculate market share, because the application service provider mar-

ket is still in its infancy.

However, application outsourcing may pave a profitable path for Oracle's long-term future. IDC forecasts that the application service provider market for enterprise software will leap from \$150 million this year to \$2 billion in 2003. ▀

## Wal-Mart Delays New Web Site

**Revamp won't be ready for holidays**

BY KENNY COLLETT

**Wal-Mart Stores Inc.** will delay the launch of its revamped Web site until Jan. 1, missing what analysts are calling a booming online holiday shopping season. But some observers said it's better to postpone and play catch-up than to require damage control.

"This is a journey for us, not a race," said Glenn Habern, vice president of new business development, speaking to industry analysts last week. Habern said the company will begin testing the new site this month with **Wal-Mart employees**. The Bentonville, Ark., company was expected to launch the expanded Web site this fall.

Some analysts agreed with Wal-Mart's move to delay the launch. "The holiday season is a tough time to execute. If you haven't fine-tuned all your customer service scenarios, you're setting yourself up for a big challenge," said Scott Silverman, vice president of Internet retailing at the **National Retail Federation** in Washington.

He said there's a lot more growth ahead for Internet retailing. Last year, online retail sales were less than 1% of the \$2.7 trillion in all retail sales. This holiday season will show double- and triple-digit growth for some online retailers, but "there's still time to grow in January," Silverman said.

In the meantime, Wal-Mart's existing Web site ([www.walmart.com](http://www.walmart.com)) will continue to take orders for holiday merchandise. ▀



LARRY ELLISON'S Oracle seems to be getting serious about implementing application hosting plans

## Browser Forces Web Developers to Choose

**AOL 5.0, doesn't support some technologies**

BY IRENE B. HARRIS  
AND SHARON MACIELIS

With last week's release of **AOL 5.0**, America Online Inc. hopes to surpass the multimedia features in the latest version of **Microsoft Corp.'s** **Internet Explorer**—taking up where **Netscape Communications Corp.** left off in the browser battle.

That means information technology folks looking to attract visitors to e-commerce sites are once again stuck in the middle, forced to use least-common-denominator tech-

nologies that both products support.

"Cascading style sheets, Flash, Java, Dynamic HTML—these are things a lot of sites are shying away from" without

support from AOL, which claims a whopping 20 million users, said Glen Lipka, founding partner of **Kokopelli New Media LLC**. The New York firm has designed Web sites for **Columbia Records** in New York, **Reader's Digest Association Inc.** in Pleasantville, N.Y., and other big companies.

"We write things as generic as can be, even though AOL has 20 million people," agreed Scott Perle, a technology manager at **Citibank NA** in St. Louis.

AOL 5.0 sports several new features that were designed, according to the company, to keep users on the service as long as possible—not fitting off to other Internet sites (see chart).



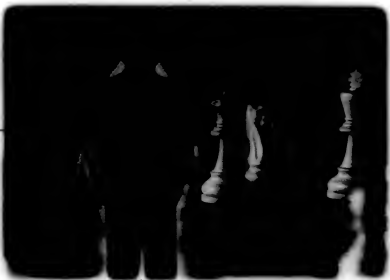
**AOL 5.0: Oracle's** Lets users search the Web without leaving AOL

**My Calendar:** Personalized calendar shared on AOL servers that users can access from any PC

**WebTV Chat Platform:** Lets users exchange images via E-mail

**AOL's E-mail on Palm/Photo:** Mail for users of **Scan Corp.'s** handheld devices

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# Study: 85% of IT Departments Fail to Meet Business Needs

Report also notes no correlation between e-commerce spending and project's profits

BY THOMAS HOFFMAN  
NEW YORK

**T**WO STATISTICS brought IT executives attending a recent briefing at the World Trade Center's 107th floor quickly down to earth:

- Eighty-five percent of IT organizations in the U.S. are failing to meet their organizations' strategic business needs.
- Only a fraction of companies are seeing visible returns on their e-commerce investments.

Those findings, released on Sept. 29, were part of analyst Howard Rubin's Worldwide IT Trends and Benchmark Report. The report is based on interviews and surveys with 10,000 information technology professionals at 6,000 companies in 28 countries.

## The Measure of Success

The financial success of e-commerce projects is difficult to quantify for a number of reasons, said Rubin. For starters, lavish spending on e-commerce initiatives doesn't necessarily deliver profitable results.

For example, even though

the construction and engineering industry ranked sixth among 21 industries in terms of its e-commerce spending growth in 1998, the industry's income growth actually declined by 22.8%, according to the report. The industry spent \$1,863 per employee, compared with the top-ranking financial services sector, which made e-commerce investments of \$13,628 per worker (see chart). But the financial sector ranked 18th in terms of income growth.

Rubin acknowledged that there isn't a cause-and-effect relationship between the spending and income growth statistics. He said he is trying to show that e-commerce spending doesn't necessarily yield immediate bottom-line gains.

Many other variables have to be factored in to determine a project's success: its impact on customer relationships, intellectual capital growth and process improvement.

## Tips for IT

Using IT to meet business goals remains elusive, Rubin said. "For most [IT] shops, the IT budget cycle takes six months to figure out how much they'll spend in the coming year," said Rubin, who is a research fellow at Meta Group Inc. in Stamford, Conn. To succeed, he said, IT departments must focus on the bottom line, collaborate with business units and customers at all levels and actively manage their IT investments like top managers.

Many attendees thought that Rubin's findings made sense but that applying those ideas to IT managements is a different

matter. "This all sounds good, but when I get back to the office, reality will set in," said Donald Drew, CIO at The Ensign-Bickford Co., a Simsbury, Conn.-based explosives maker.

Drew said his company has been wrestling with how to meet its customers' educational needs while trying to protect technical documentation online.

"Timothy McVeigh was able to learn how to build explosives [by using the Internet for research]. We have to be very responsible about what we make available," said Drew. Nevertheless, he said he believes there are some good opportunities to educate and market products to customers online even if there isn't a clear fit for online sales at Ensign-Bickford.

Others agreed with Rubin's general assessment that IT organizations need to be more dynamic. "Our IS budget cy-

cles take too long, and by the time a project has been approved for funding, the requirements have changed and it's time to revise the plan," said Marcus Armstead, a management associate at The McGraw-Hill Cos.' technology group. ■

## Go Network Adds Auction Capabilities

BY ANNE MCGURRY

Infoseek Corp.'s Go Network—the Web portal whose partners include The Walt Disney Co., ESPN Inc. and ABC Inc.—last week launched consumer auction capabilities. It's the first commerce offering at what until now has been a content-based site.

That means viewers on any of Sunnyvale, Calif.-based Go Network's sites can be greeted with banners and notices about items for auction related to content they're viewing. For example, a sports fan who logs on to Bristol, Conn.-based ESPN's site after a football game would find out if a football autographed by that game's winning quarterback was available for purchase.

Andrew Hamsel, vice president and general manager of Go Network Auction, said the site is backed by security safeguards to prevent fraudulent offers or bids and by screening to ensure that offensive or illegal items aren't offered for sale. Items such as marijuana and kidneys have reportedly appeared for sale in recent weeks on the site of now-civil-ill.com.

Hamsel said he expects the Go Network to debut other commerce offerings in the next six months.

Hamsel quoted Cambridge, Mass.-based Forrester Research Inc. statistics that measured the size of the online auction market at \$1.4 billion in 1998 and projected its growth to \$19 billion in 2003. "It's going to explode, and we want to be part of that," he said.

Burbank, Calif.-based Disney now owns 43% of Go Network and is in the process of buying out the rest of the company. ■

## Nasdaq Upgrade Forces Trader Nets Off-line

Slowdowns prompt their request for temporary removal

BY THOMAS HOFFMAN

Three alternative trading networks had to be temporarily removed from Nasdaq Stock Market Inc.'s trade reporting and quotation system last week when a software upgrade led to a slowdown of the stock market's SelectNet system.

The three electronic com-

munications networks (ECNs) that were affected—Island ECN Inc., Instinet Inc. and BRUT—were temporarily prevented from receiving Nasdaq stock quotes.

Two of the ECNs requested to be removed from the market because of the slowness of the existing SelectNet system, which was being updated starting Tuesday night to accommodate Nasdaq's plans to begin offering after-hours trading support (News, Oct. 4) beginning next week.

ECNs are alternative trading networks that allow buyers and sellers of stocks to conduct transactions without Nasdaq market makers such as Goldman, Sachs & Co.

By shortly after 1 p.m. on Oct. 6, all three trading networks were reconnected.

Nasdaq temporarily removed the high-traffic ECNs from the system to reduce the volume of activity and help the system run faster, according to a press release issued by Nasdaq. ■

## Domino R5 to Support XML

BY DOMINIQUE DESSAUVRE

A quarterly update to Lotus Development Corp.'s Domino R5 will add support for Extensible Markup Language (XML) and Microsoft Corp.'s Component Object Model (COM). The update will ship within 30 days.

XML support will make it easier to set up server-to-server communications between Domino and other environments, Lotus said. Domino R5 won't store XML directly but will parse XML documents and store them in its native format. However, Lotus has stated

that it intends to offer native support for XML in the future.

Support for COM will give developers using Microsoft tools an easier way to leverage Notes/Domino features, said Chris Reckling, senior product manager for Domino Designer and XML. Previously, Domino supported OLE, which runs only on the desktop and required the Notes client to be active. ■

## E-Dollar for Dollar

E-commerce spending per employee, by industry:

Finance	\$18,480
Insurance	\$12,371
Telecommunications	\$12,455
Energy	\$12,351
Chemicals	\$11,465
Building	\$11,380
Utilities	\$11,284
High-tech	\$11,250
Pharmaceuticals	\$11,057
Health care	\$11,000
Retail	\$10,358
Manufacturing	\$10,177
Hospitality/Travel	\$10,000





## What is Windows NT Advantage?

Windows NT Advantage is the partnership among Microsoft, Compaq and Computerworld Enterprise Business Solutions to inform IT leaders about Windows NT technology by providing timely, useful information — in print and online — for planning and deploying Windows NT and Windows 2000 on Compaq hardware using Compaq services and solutions.

## Online This Week

### Deploying Windows 2000 in Web Intranets

Need to communicate more effectively with partners and employees? Windows 2000 Professional and Windows 2000 Server will work together to enhance intranet-based business communications.

### Compaq Eight-Way Servers Power Mission-Critical Apps

Because downtime could cost the utility more than \$1 million an hour, Illinois Power turned to Compaq's ProLiant eight-way SHAP servers to keep the lights on 24 hours a day, seven days a week. The servers give the utility the power to achieve sub-second responses.

### Reliability in the Enterprise: The Real Secret is Planning

Reliability in the enterprise isn't just another sales gimmick. It's a must. And now, even a standard \$2,000 Windows NT workstation must be as reliable as a million-dollar mainframe. There is an increasingly important role played by services and support such as the "preventative medicine of computing" provided by Compaq Services Division.

**QUICK** Will you be seriously investigating a Windows 2000 implementation within the next 24 months?

Migrating from Windows NT to Windows 2000 is a major step forward for thousands of businesses. The transition involves more than just an upgrade — it requires significant advanced planning. How many of your peers are developing those plans now?

Cast your vote now at

[www.WindowsNT-Advantage.com](http://www.WindowsNT-Advantage.com)

**Microsoft**

# Windows NT

## Planning a PC path to success

**Compaq's assessment service is there to help**



By John Pancharian

As the millennium draws near, PC upgrades are looming on the horizon for many companies.

Your enterprise will probably migrate to Windows 2000 and NT, and those old boxes that were adequate for Windows 9x and last year's software just won't have the muscle to swing the new hammer. But there are a lot of issues to consider before procuring new PCs.

To help with the decision process, Compaq has developed an in-depth planning program ([www.compaq.com/solutions/pc/solutions/](http://www.compaq.com/solutions/pc/solutions/)), part of its PC Lifecycle Solutions service. Its goal is to help build sound purchasing strategies by breaking the process down into four steps: assessment, selection, financing and validation. This article examines the first.

Compaq's assessment services were designed to answer the question: What type of PC do I need? To solve the technical and of the question, Compaq offers an availability review that will identify potential risks in changing infrastructure, analyze the existing systems and suggest improvements. And Compaq evaluates the new setup in its testing centers.

"We're able to recreate the customer's environment and test that specific hardware and software to see that it will work," says Tom Baffler, director of marketing programs and customer service at Compaq. Compaq also approaches assessment on a business-centered front. "You need to have a clear idea of what your business needs are now and over the next couple of years, and then match PCs to the business needs," he says.

"PCs are really pretty comparable in terms of performance and scalability. That's what everything boils down to — service, service, service," agrees Kristen Poe, a consultant at CGI Systems. To keep support costs down and service lev-

els up, he suggests starting with the request for information. When you send a request, be specific about what support you require, he says. "Most vendors will want to come in and wine and dine you, so take advantage of that," Poe says.

Craig Broussard, IT manager at Equilon Enterprises, sings the praises of standardization as a means of bringing down costs. Standardizing also simplifies support and eliminates management headaches.

Franco Gentili, director of Compaq Professional Services, Enterprise NT, warns against "trying to make savings for the sake of making savings." He stresses the importance of looking at existing systems and employing user profiles to fit new hardware to users' needs. "Otherwise," he says, "you will lose the benefits of having a tool that's right for what you're doing." ■

To read more about Compaq's upgrade assessment service, visit [www.WindowsNT-Advantage.com](http://www.WindowsNT-Advantage.com).

# Advantage

INDUSTRY INSIGHTS  
by Dan Kusnetsky

## Spectrum of Windows NT scalability

The industry's perception is that Windows NT simply won't scale the way Unix does. Microsoft and its partners counter by publishing amazing benchmark results. The perception that Windows NT just won't scale continues. Why do you suppose this is happening?

Most IT organizations understand that benchmarks may not be the best way to determine the scalability of an operating environment. They remember Mark Twain's comment that there are lies, damn lies, and then statistics. They are sure that Mr. Twain would have added benchmarks to the list had he known about them.

Competitors may also be playing one of their strengths against the current weaknesses of Windows NT. The most important point is that scalability is a complex matter that is being described in overly simplified terms.

In reality, it is possible to construct Windows NT-based configurations to handle all but the very largest of computing tasks. It is likely, however, that these configurations will be designed differently than those based on other operating environments. Developers are likely to utilize a network of functional servers rather than large multifunction servers as the basis of their solution.

### How Can I Make Windows NT Scale?

IT organizations wishing to assign a large or complex task to Windows NT must



**Scalability is being described (in the industry) in overly simplified terms.**

take advantages of this operating environment's strengths and avoid its weaknesses. Windows NT offers a number of features designed to support distributed applications. Properly used, these features make it possible to implement any but the very largest applications on Windows NT today.

A developer designing a large transactional application for the Windows NT environment would likely segment it into several services: user interface, individual transactional functions, networking or Web services and database services. These services may be linked together today using Microsoft's transaction server and Microsoft message queue or using transaction-oriented middleware from a number of third parties. Tomorrow this developer may use Microsoft's COM+.

The advantages of this approach are flexibility and modular growth. When any function begins to overpower its host, another server can be brought in to support part of the workload. It isn't necessary to replace the system with a bigger system. Using this approach, Windows NT can scale to handle amazingly large tasks. ■

Kusnetsky is program director for International Data Corp.'s operating environments and serverware services.

The Web Magazine for  
IT Leaders Implementing  
Windows NT on Compaq Platforms

## Point of View

### Compaq Portables Deliver Durability

Owner's manuals warn users to keep electronic equipment out of direct sunlight and cold temperatures, as if everyone lives in a perfectly balmy climate.

But that's not reality. For example, this past spring, three Compaq Armada 7400 series notebooks made their way to Mount Everest as part of the Everest Extreme Expedition.

One part of the mission was to push the limits of equipment and technology that will accompany astronauts to the International Space Station.

The 15-member team operated at altitudes of 17,500 feet and higher. The Armada 7400 computers were used for data analysis, video-conferencing via the Internet, e-mail and other day-to-day tasks.

"In order to prepare for the expedition, we tested three Armada 7400 notebook PCs in a U.S. Army environmental chamber up to 18,000 feet [equal to the base camp of Mount Everest] and down to -30F. All three Armada [notebooks] came through without a hiccup," says

Brett Harrell, webmaster on the expedition.

The Armada 7400 Series has a durable magnesium-alloy case and the latest high-performance features in a lightweight, thin design.

Preparing a product for the extremes cold is one thing, but it's quite another to ensure that a laptop can function in extremes of cold and hot weather.

Adventurer Jerry Pournelle took the Compaq Armada 4200 series notebook to Death Valley. To test the

Delorme GPS receiver he had connected to his Armada, Pournelle decided to veer off the paved road onto a dirt path. Road conditions quickly became disastrous, and Pournelle's truck flipped over. He was flung onto the side of his truck, with injuries to his face and hands.

And the Compaq notebook computer? It had been on the passenger seat with the Delorme GPS tracking receiver on the dash. It was thrown from the truck, in a dirt ditch, some 30 feet away (see photo). But amazingly, the Armada was still working. ■

**www.WindowsNT-Advantage.com**

## BRIEFS

## Media Matrix Buys Ad Measurement Firm

Media Matrix Inc., a New York Internet traffic measurement company, announced its acquisition of Seattle-based AdPerformance Inc., which tracks and measures Internet advertising. Media Matrix said it plans to combine newly acquired data on ad spending and placement with its own e-commerce measurements to provide a broader understanding of the digital marketplace.

## Intel Buys Internet Commerce Company

In its eighth acquisition of a network- or communications-related company this year, Intel Corp. has agreed to buy iPlanet Inc. for \$550 million in cash. Power, Calif.-based iPlanet makes Internet commerce equipment that determines where data should be processed and then has the system to servers that can deliver the best response time.

## AMD Reports Loss, Puts Unit on Block

Advanced Micro Devices Inc. reported sales of \$985.2 million and a net loss of \$305.5 million for the quarter ended Sept. 26. Sales were down by 2% from the same quarter last year. Separately, AMD said it's seeking a buyer for its Communications Group, which provides integrated circuits for telecommunications applications, data communications and computer connectivity. AMD said it expects to focus on the PC platform and plans to complete the sale in the first half of next year.

## Bell Atlantic, 3Com Team on Home DSL

Bell Atlantic Corp. and 3Com Corp. last week announced that they will launch a \$220 toll-free line to give customers everything they need to get hooked up to the Internet through high-speed Digital Subscriber Line (DSL). Once it's installed, users will have a choice of several levels of DSL and Internet service, starting at \$49.95 per month.

## Pair Latest to Offer Outsourced Storage

## Level 3/StorageTek agreement adds option for managing seasonal storage needs

BY SAM LAMB  
AND KATHLEEN OHLSON

LEVEL 3 Communications Inc. and Storage Technology Corp. last week became the latest collaborators in providing alternative storage, backup and recovery facilities for companies of all sizes.

Under the agreement, each of Broomfield, Colo.-based Level 3's data centers will use several of StorageTek's Storage Utility products, including tape, disk and backup utilities, connected by a Fibre Channel storage area network.

StorageTek has been pushing to offer storage by the megabyte. This summer, the Louisville, Colo., company struck an alliance with Sun Microsystems Inc. through which StorageTek incorporates Sun's open enterprise disk technology and Sun incorporates StorageTek's enterprise tape automation systems. Both companies provide service and

support for their products.

"Storage alternatives are a hot area for investment," said John MacArthur, an analyst at International Data Corp. in Framingham, Mass.

Early adopters of storage-for-hire services are companies "looking for someone to provide backup and recovery or that have a transient or seasonal need," he said. Such users might include a company replicating a data warehouse or a retail company whose data storage needs burgeon during the winter holiday season.

Level 3/StorageTek network of 20 gateways, each with 100MB to 1GB of storage.

StorageTek provides tape, disk and backup utilities, connected by a Fibre Channel storage area network.

Level 3's customers, from corporations to Internet service providers, have storage space and choose how to store, backup and recovery services.

StorageNetworks Inc. in Waltham, Mass., this summer signed storage giant EMC Corp. in Hopkinton, Mass., to provide enterprise storage hardware and software for 36T bytes' worth of data storage facilities.

"Partly, it's still a case of 'if you build it, they will come,'" MacArthur said, "but some of it is user-driven."

then ebbed to lower levels during the rest of the year.

Another factor that favors the outsourcing model for on-again, off-again storage needs is staffing. "If you have a professional storage manager getting \$100,000 a year, you don't want him sitting idle," MacArthur said.

That won't be a problem for companies that opt for the

Level 3/StorageTek service, said Steve Spiegel, product marketing manager at StorageTek's Solutions Business Group. StorageTek will manage customers' storage environments at each Level 3 gateway facility.

"Creating a storage utility model where you're sharing costs among lots of subscribers makes sense," MacArthur said.

The market offers a range of pricing models, including paying for hardware with rights options and having the parties share financial risks. That's what British Airways PLC did: It struck a risk-sharing leasing deal with Sun, which this year created Sun Microsystems Finance to devise just new pricing structures.

Partnerships are another pricing option. One storage provider, for instance, tied its fees to those earned by its customer, MacArthur said.

Creative pricing to attract storage customers is worth vendors' time, however. StorageTek ensures it will earn \$400 million in revenue over the next two or three years with the Level 3 agreement. ■

## Intuit Buys Mortgagor

BY NANCY WIEL  
Personal financial software vendor Intuit Inc. is expanding its online mortgage turf, buying Rock Financial Corp., which offers home loans on the Internet, in a stock deal valued at \$370 million.

The deal would allow Mountain View, Calif.-based Intuit to create a direct lending model, leading to higher loan volumes for the companies it works with on mortgages. It will offer customers more choices and improved service, Intuit and Bingham Falls, Mich.-based Rock said last week.

Quickenmortgage, Intuit's online service, lets customers compare mortgage rates from a range of lenders. Rock's mortgage Web site, www.RockLoan.com, will work with QuickenMortgage. ■

Wiel writes for the IDG News Service in Boston.

## IBM, AT&amp;T Launch E-Services Partnership

For \$35,000+, users can buy a Web site

BY LAURA ROHDE

AT&T Corp. and IBM last week announced they have begun a strategic partnership to provide e-commerce services for small and midsize companies.

IBM will provide the hardware and software on AT&T's network, and the services will be delivered through a joint AT&T/IBM channel. Prices start at \$35,000.

"The giants are dancing, and they've invited a whole lot of small businesses to the dance as well," said Jack Staff, an analyst at Redwood City, Calif.-

based Zona Research Inc. "However, what they consider small business and what other people consider small business are probably two different things."

The companies said their collaboration will help customers build Web sites with electronic catalogs and secure e-commerce. AT&T will manage Internet connectivity, ranging from speeds of 56K to 155M bit/sec.

"It doesn't take a rocket scientist to realize that the next century in e-commerce is going to be about how you push the content through the pipe," Staff said. "Building relationships with companies that have a transmission method is

something that everyone wants to do."

The IBM/AT&T service will include IBM's Start New software: a choice of servers — an IBM Netfinity, AS/400 or RS/6000; and customization options from IBM's Business Partner service. AT&T's Managed Internet Access Service will provide the Internet connections.

Servot Technology Group Inc. in San Antonio will be the first application service provider contracted to provide the package, the companies said. ■

Rohde writes for the IDG News Service in London. Computerworld reporter Carol Shiva contributed to this report.

**MISSION:** You're going home. At United Health Services, that sound of success is heard more quickly these days. How? A Lockheed Martin network that's turning paper systems into digital systems. The result: medical data that appears when it's needed, where it's needed: at bedside, in the lab, or viewed by physicians in several locations at once.

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PMSC

USG

United Health Services



Lockheed Martin

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KEVIN FOGARTY

## Supply-chain puzzle

IT WAS A TRUISM in old IT shops that massive, multiyear application development efforts designed to benefit all parts of a large business were destined to fail. Most battle-scarred veterans of IT can recall bloodbaths caused by managers who ignored that rule. But that doesn't stop others from launching

new campaigns, especially with ERP or supply-chain projects that tickle the fancy of top managers.

Most of the ERP projects Computerworld reporters write about aren't failures, exactly, but they're not raging successes, either.

Most seem to be semi-emergency measures to fix Y2K or standardize back-end systems.

Most are approved based on just one or two clear benefits. Users wait until after installation to see if they can get any additional benefit in exchange for the pain of installation.

But after installation, figuring out which weaknesses are big problems and which aren't worth any serious effort to fix can be like matching dark socks in the bedroom with the lights out. There are lots of possibilities, but a real likelihood you'll walk out with a mismatch. Supply-chain users now face the same dilemma.

The applications have worked well enough for early adopters for International Data Corp. to now predict that the supply-chain application market will explode, from \$13 bil-



Kevin Fogarty is Computerworld's business editor. Contact him at [kfogarty@computerworld.com](mailto:kfogarty@computerworld.com).

lion in 1998 to \$22.9 billion in 2003, as other users jump on board.

But later users may not match the manufacturing model — with its relatively few suppliers and short supply chain — that has spelled success for early adopters.

Stretch the concept to retailers, for example, whose hundreds of suppliers and thousands of products make them perfect supply-chain candidates.

But retail chains find that tracking even a small percentage of that

stream of supplies is almost impossible — meaning most retailers have no idea if the vast sums they've thrown at their supply chains are having any effect.

And even if there is an effect, analysts predict that it will be five years before most big companies will see a solid payoff.

What's that mean for the future of supply-chain apps? Probably nothing. Once a train like that gets rolling, it's hard to stop. But it makes you wonder: With all those users jumping on board, just what do they realistically expect to get for the price of a ticket? ■

ALLAN E. ALTER

## It's time we made quality an e-word

WHERE'S QUALITY now that we really need it? And boy, here in the wild and woolly dawn of the e-commerce era, do we need it!

The story of e-business is not just a tale of instant billionaires, it's also a sorry saga of gaffes: the outages at MCI, eBay and America Online; the online frustrations of the '98 Christmas shopping season; the security hole in Hotmail. For each headline there are thousands of snafus — orders not fulfilled, e-mail unanswered, bills unpaid and so on.

I'd like to think things will get better, but I suspect they're going to get worse. I say this knowing that some companies are slowing down their e-commerce efforts so they can better integrate their site with their back-office applications.

The infrastructure required to make the e-business revolution is a mess. Did you think three-tier client/server architectures were complex enough?

E-commerce needs five tiers: the databases and file systems, a layer of software to integrate with existing back-office systems, the e-commerce application tier, another tier for outside services used to run the Web site and whatever PCish or post-PCish device the user is using.

Under the calmest conditions, this environment would take a long time to master. But who's calm these days? Today, the spoils go to whoever coughs up a product first, no matter how poorly it works, and established companies are afraid of being "Amazoned." Add to this the computer industry's history of getting away with buggy products and the fact that no high-profile e-business has yet failed due to quality problems, and the situation looks grim for quality e-commerce services.

Nevertheless, companies can't get away with poor quality forever. Eventually, a Toyota or Wal-Mart comes along to blow away a GM or Kmart. Already, some realize that quality can be a differentiator in the e-business world. There's an opportunity here for the IT world's quality professionals — project managers, contract managers, quality assurance professionals and testers — to make a difference.

That is, if they don't blow it. The quality movement kerplunked on its keister back in the mid-'90s. Today, few fuss over the



Allan E. Alter is Computerworld's columns editor and department editor, managing. Contact him at [alter@computerworld.com](mailto:alter@computerworld.com).



Baldrige Award. Many corporate quality programs have been dismantled. Inside the IT world, quality assurance is marginalized. There are exceptions — notably General Electric's embrace of Six Sigma — but there's little buzz today about TQM.

Why? The quality movement went overboard. Its advocates acted like zealots but delivered less value than they promised. Hitting quality goals seemed more important than profits, procedural rigmarole a higher priority than getting product out the door.

That is the challenge for the quality movement: how to practice quality in Internet time, at speeds time-pressed executives can tolerate. If they can do that, with less hubris and stridency than before, we have a shot at building a better e-commerce world. If not, we're in for a long, painful slog. ■

DAVID MOSCHELLA

## It's official: IT firms rule the investment world

**D**OES IT SURPRISE YOU that Cisco is now worth more than Exxon, that AOL is worth more than the combined resources of DaimlerChrysler, that Dell is worth more than Ford, or that EMC is valued more highly than the once almighty General Motors? These are just a few of the findings gleaned from the recent *Wall Street Journal* compilation of the world's 100 most valuable corporations, ranked in terms of their stock market capitalization as of June 30.

Thus far, most of the IT stock price debate has been expressed in absolute terms. Are valuations too high, too low or just right? To me, though, a comparative perspective is more concrete, more relevant and just plain more interesting. Indeed, comparisons are what investors deal with every day, since they always have the option of taking their money out of IT and putting it into some other business.

Today, they clearly prefer to keep it in technology. Fully one-third of the *Journal's* top 100 are either computer or telecommunications firms. The list includes 16 computer and communications product companies and 18 vendors of telecommunications services. The only other industry that comes close to this type of presence is finance

(banks, brokerages and insurance companies), with 17 companies making the list. There are just eight companies from the once-dominant auto and oil sectors.

For the record, the IT companies are Microsoft (1), IBM (3), Cisco (5), Lucent (6), Intel (8), Nokia (29), Hewlett-Packard (32), Dell (37), Nortel (73), Ericsson (74), Motorola (77), Texas Instruments (78), EMC (80), Oracle (81), Sun Microsystems (82) and the highly diversified Siemens (92). Some people might also want to count Sony at 96. Notable absentees and potential newcomers include Compaq, Gateway, SAP, Computer Associates and all the major players from Japan, Korea and Taiwan.

The telecommunications services rankings are noteworthy because they are now equally split between U.S. and non-U.S. companies. Telecom services companies on the list are Japan's NTT (10), AT&T (11), MCI WorldCom (15), Deutsche Telekom (21), AOL (25), SBC Communications (26), British Telecom (28), Bell Atlantic (35), BellSouth (38), Ameritech (41), France Telecom (45), Australia's Telstra (49), GTE (51), Telecom Italia (62), the U.K.'s Vodafone (69), Telefonica de Espana (83), Sprint (86) and AT&T's upcoming acquisition, MediaOne Group (93). After their

merger, Qwest and US West will also join the club. In fact, given the rise of services firms such as EDS, Computer Services Corp. and Yahoo! IT and telecom services companies might someday make up the real list.

The geographic mix depicts the dramatic shifts of the past decade. No fewer than 62 of the top 100 companies are based in the U.S., compared with 32 from Europe, just four (NTT, Toyota, Bank of Tokyo and Sony) from Japan, and one each from Canada and Australia. The value of most Japanese companies has shrunk so far that Japan's presence is now the same as the Netherlands' and actually trails Switzerland's (5). Surprisingly, the U.K. ranks a strong second with nine, although it's the overwhelming U.S. lead that clearly stands out.

No one will be surprised to hear that investors are betting their money on both IT and America, but it's only a list like this that gives us a tangible sense of the truly seismic shifts that have already occurred, while reminding us of how much things could change again. Eventually, the dominance of companies selling technology will recede, and those actually using IT will rise to the fore. But don't bet on this happening any time soon. Right now, the sellers are still in control. ■

## READERS' LETTERS

### Thin clients can stand up to tough questions

**L**ET ME weigh in on Dan Gillmor's "Questions on thin clients" ["Thin Clients: Can They Stand Up To Tough Questions?" News Opinion, Sept. 20].

Although Mr. Gillmor says network computing makes sense, he seems to be damning with faint praise.

It's specious to say PCs have an advantage in the area of the network staying up. I would venture to say almost all but the smallest organizations have all of their commonly used files on file servers.

The security flaws Gillmor enumerates are all features of desktop PCs, so I assume this is a point in favor of thin clients.

Bandwidth raises legitimate questions of where to deploy thin clients. But I don't think this makes IT's job significantly more complex. If

the support costs for the direct-connect thin clients is reduced nearly to zero, then supporting a few mobile laptops is still a winning proposition.

And perhaps Gillmor could provide a future column detailing how and why adding thin clients and simplifying the support organization added complexity. **Bruce F. Lutz, CCP Consultant, ERP services CTO Albany, N.Y. steven.lutz@ctg.com**

### Internet buying standard ready now

**I**NTERVIEWED members of the OBI Consortium failed to establish a few facts about Open Buying on the Internet (OBI) in your Sept. 6 article "Backers Hope OBI Upgrade Will Spur Usage, Finally" [Business].

OBI is a model for conducting business-to-business electronic procurement.

The model defines what buyers and suppliers have to do. The model keeps responsibility for data maintenance, storage and so on where it naturally exists, and it is scalable.

Moreover, the OBI model and data standard can be implemented today, whereas there still are no transaction sets or models for Extensible Markup Language. **Timothy M. Amarallos IT manager SDSU - Business Services San Diego**

### Microsoft earned its place in the market

**T**HANKS to columnist David Moschella for one of the best observations about the entire Microsoft "mania" that I have seen ["Each Round of Poker Could be Bill Gates' Last," News Opinion, Sept. 13].

Our society, even the "champions of IT commerce," has become so

socialistic that we want to be given our portion rather than earn it.

Mr. Moschella's analogy to poker was right on the mark.

However, if the rules of the game are going to change so that the market winner has to pay those market losers, I might try and get some money back for my software company, which failed in 1993. I wonder how my competitors would like to receive a bill? **Joel M. Ellis Analyst Birmingham, Ala. jellis33@earthlink.net**

More letters, page 38

**COMPUTERWORLD** welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Alan E. Alter, columns editor, Computerworld, PO Box 9971, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 875-6920. Internet: letter@computerworld.com. Include an address and phone number for immediate verification.



DAVID MOSCHELLA is an author, independent consultant and weekly columnist for Computerworld. Contact him at david@moschella.com.

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JOHN GANTZ

## Merging the e with the b in e-business

**A**LL IT TOOK was a day last week at the Marketing Services/99 conference in Boston to realize that the computer services industry is being turned topsy-turvy by the e-business trend.

In the old days, IT service firms earned their livings by developing, implementing, supporting and outsourcing applications for the enterprise. Now they're doing it for whole industries.

Computer Services Corp. (CSC), for instance, runs the computer systems and back-end processing for e-Steel, a new exchange for buying and selling steel. E-Steel replaces inefficient middlemen with a Web site. CSC also supports several other similar vertical transaction exchanges — in fact, CSC is pretty close to being able to be the exchange, not just run it for someone else.

Or take Andersen Consulting, which, through its chemical industry consulting practice, has equity in ChemConnect, an Internet-based chemical exchange. The company believes that up to 15% of the \$1.6 trillion chemical industry will move through Internet exchanges in less than four years. Through ChemConnect, Andersen is willing to go half the distance to becoming a chemical company — buying and selling chemicals, hiring experts to produce content for the Web site — to get a piece of that action.

IT service firms are finding that, in e-business, it sometimes makes sense to run both the e and b part of the application. If you can design and install procurement applications, why not simply run procurement?

The opposite is true as well. Traditional businesses are getting into the IT outsourcing space. Ryder Truck, which no one would classify as an IT services firm, will not only rent your trucks, but will also outsource your entire logistics system, including the computer applications. Car-makers have set up their own Internet-based exchange, the Automotive Network Exchange, for trading auto parts. Even the U.S. Postal Service is trying to establish itself as an e-mail outsource.

This merging of the e with the b in e-business is changing some of the time-honored roles of the IT services industry, including the following:

- The buyer of IT services is increasingly a business unit executive rather than an IT professional.

- The short list of buying criteria has expanded from technical capability and experience to include Web site design skills and the ability to build online communities.

- IT service firm competitors now include not only like companies, but also Internet service providers, dot-com start-ups, interactive designers and agencies and former customers.

- Pricing schemes are no longer solely fixed-price or time-and-materials. They can include payments based on business metrics, like cost cutting or increased revenue or inventory turns.

What does a sea change in the IT services market mean to you? If you're running your business like a real professional services outfit, you're going to hit the same walls sooner or later: departments that want you to work on performance guarantees; departments that measure you on business results; not project milestones; department that want you to run whole business processes.

Look to these firms as harbingers. It wasn't that long ago that Andersen Consulting was simply an IT shop that supported the company's tax accountants and auditors. Now that shop wants to dominate the chemical industry. ▀

ALEX TORRALBAS

## Stop the madness! 12 ways to make computing reliable

**W**E TAKE dial tones for granted and assume that electricity will be there when we plug

something into an outlet. We board airplanes knowing the risk of crashing is remote.

The simple fact is that the infrastructure of modern society was built to be reliable, predictable and safe.

But now we depend on a new infrastructure: PCs and the Internet. Neither of these is reliable or predictable. Well, perhaps one thing is predictable: They will fail daily in some capacity — from program crashes and system lockups to service outages, slowdowns and stumblers that send vendors and IT departments into finger-pointing snits.

This infrastructure is where the world's economy is unpacking its moving crates and settling in. That's scary.

It's an infrastructure knitted with black holes of responsibility. When things break down, nobody — not IT, not the telcos, not anyone — says, "The buck stops here."

Which isn't to say that everyone can't find someone else to blame. Your Internet service provider blames hackers, the IT department blames vendors, software vendors blame hardware manufacturers ... and everyone blames Microsoft, which blames everyone else.

Well, the madness must stop. Too much is at stake here. The following 12 solutions are simple but radical:

- All Internet providers must use antivirus software at their servers to screen for malicious programs and other potentially damaging content. If found, they should block it and notify the user. If the user still wants to receive it, he can override and get the malicious content.

- Any publicly traded company must be required by the SEC to undergo a yearly security audit. Results must be submitted with year-end filings as assigned a pass/fail grade, and credit agencies should be asked to take this into consideration when assigning risk.

- All providers, telcos and others supplying Internet connectivity must guarantee 99.9% availability and speeds at 100% of what you pay for.

- Invading someone else's network or PC for any reason whatsoever should carry minimum sentences of 10 years in jail — on a first offense. If the culprit is a minor, he cannot have unsupervised access to computers until he is 21.

- Every vendor of hardware must certify through a federally accredited lab that their products "behave well" with any operating system, any networking software that exists or is in final beta, and any software that has either a 25% market penetration or is used by at least 10% of Fortune 500 companies. Independent testing labs have obviously dropped the ball, so someone has got to do it better. Corrupted databases or server crashes due to something as mundane as a video card "incompatibility" is just unacceptable.

- All software must be free of bugs. Period. Software should be as fail-safe as air traffic control or heart monitors. Period. Will it cost more? Sure, but better to have reliable software than patch after patch (some of which just introduce new bugs); useless, costly "upgrades," and point releases.

- All software must have unconditional money-back guarantees for life.

- All software must offer free technical support for life.

- All technical support must be 24/7/365.

- All programmers must spend a five-year apprenticeship in "the real world." That is, nobody should write a line of code until they've actually made a living using someone else's software and operating systems in a real business environment.

- Every function in every piece of software must be usability-tested by target users for six months before final release.

- Every feature promised or advertised must work exactly as promised or advertised.

These may sound extreme or even crazy. But they're neither when you figure that we're putting all our economic eggs into this slipshod basket. One thing is for sure: They can't make things any worse than they are today. ▀



JOHN GANTZ is a senior vice president at Internet Data Corp. in Framingham, Mass. Contact him at [jgantz@idc.com](mailto:jgantz@idc.com).



ALEX TORRALBAS is a consultant to small and mid-size companies after many years in the telecommunications field. Contact him at [alex@atlantis.com](mailto:alex@atlantis.com).

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## Reich on target, but labor solutions must go further

I **T**ENTHLY AGREE with Robert Reich's "Coping With the U.S. Shortage of High-Tech Workers," *News Opinion*, Sept. 6.

Most firms, especially consulting firms, seldom train their employees in new technologies. This makes good, skilled employees quickly obsolete.

It is very difficult for them to keep up with their own time, so employers get rid of them because it's much easier to import people who have the skills than to train existing employees. There is absolutely no loyalty on the part of the employee, and it shows in the turnover of IT employees looking for more.

Karen Marshall  
Hawbury Park, Ill.  
KMarshall@CBSINC.com

**T**HANK YOU, Mr. Reich, for writing the Computerworld column on Sept. 6 deriding the current H-1B quotas. From my perspective as a 53-year-old computer programmer, I welcome your voice. Please say more, often.

Tom Brandel  
Plymouth, Mass.  
tjbrandel@four.net

**W**ITH ALL THAT I have read concerning the so-called shortage of high-tech workers, Robert Reich's column is the first to come close to hitting the problem straight on. His idea of giving stock options and "growing your own" is a good start, but we need to go much further if we are going to ensure a good supply of highly trained IT and engineering personnel.

As someone who has been working in the information technology field for more than 20 years, let me emphatically state that there is no shortage of qualified people willing to fill the positions. This so-called shortage actually results from two problems:

1. An educational system that doesn't prepare students for the rigors of the college courses required to obtain degrees in technical fields such as engineering and IT.
2. The insistence of employers

to so tightly define skill sets that only those individuals coming right out of college have any chance of meeting the requirements.

Rather than being good corporate citizens and becoming a part of the solution, corporations have simply lobbied for increases in the number of H-1B visas that can be issued. This is the easy way out.

Let's look at the rationale of a company that needs to move into a new technological arena. It could either take an existing employee, spend a considerable amount on training and pay him a higher wage or bring on new talent (recent college graduate or H-1B immigrant), spend nothing on training, pay a lower wage and force him to move on at the end of the project.

Needless to say, more companies are willing to take the second option.

In the past, companies were willing to provide additional training to move older employees (age 40-plus) into new technology. Now, employers are unwilling to spend even a modest amount for employee training because of the belief that the employee will take the new skills to another company and will be unwilling to put in long hours without additional compensation.

The safety valve for this shortsightedness has been the H-1B visa and a tax policy that discourages corporate training of employees. While the increase in H-1B limits may meet some short-term need, it serves only to further erode the country's ability to maintain technical superiority over the long term.

My solution to this sorry situation would be to eventually reduce H-1B limits by 90% and to allow hefty tax breaks for companies that spend more than 2% of gross revenue on employee training. Only in this way would we force compa-

ROBERT R. REICH

### Coping with the U.S. shortage of high-tech workers

**T**HE BIGGEST threat to America's booming IT sector is a severe shortage of skilled people. Some estimates put the current shortfall at 400,000. What's to be done?

In most industries facing such shortages, salary levels rise until enough people are attracted to fill the need. Supply responds to demand. But, as you'll see in Computerworld's 10th Annual Salary Survey ("Returns to Sanity," page 42), salaries in the computer IT sector have been rising no faster than in most other parts of the economy. There's no beating the free market: If the IT sector wants more people, it has to pay for them.

Companies need to deal with the root causes of the skills shortage and make the country more competitive in the future.

And only in this way will companies be willing to recruit more aggressively and search for talent just waiting to be found (and trained).

Sandro Silvestri  
Director  
Henry Ford Community College  
Dearborn, Mich.  
dsilvestri@hfc.net

**A**LTHOUGH MR. REICH might have been an excellent Labor Department secretary, I doubt he was in the data processing field. As a retiree who has more than 30 years in the field of systems development, I feel that the shortage of high-tech workers will continue.

When I entered the field, programming and systems were a challenge and the field had a feel of creativity; deadlines were a realistic date; problems, depending on importance, were able to be resolved the next day; and companies were willing to help educate staffs in the newest technologies.

As I left the field, programming and systems seemed to have shifted to orders to follow the guidelines; deadlines were

not just yesterday, but last week; everyone worked 24/7 regardless of problems; company requirements were filled by hiring new people, not by educating the existing staff.

It is perhaps time that IT look at itself and again reinvent itself. Bring back the joy of working with computers, bring back the feeling that not everything is needed yesterday and have personnel feel that they work to live and not live to work.

Ralph Schaeffinger  
Monroe, N.Y.  
rschaeff@att.net

**M**R. REICH says high-tech companies could not beat the free market. I'm very glad he has come to realize this. When he was working in the Clinton administration, he propagated myths of government intervention in the market with fixes like higher minimum

wages. This always disturbed me because these actions usually harm those they're intended to help.

I only hope that my field, by creating a true world economy, will eradicate centralized control and make dinosaur policies obsolete. America owes much to IT.

Michael P. Oribbins  
Louisville, Ky.

**A**S AN IT professional of 25 years, I found Mr. Reich's column both concise and 100% on target. U.S. corporations would be wise to heed his evaluation of the situation and his useful advice. I am relieved to find someone who is seeing clearly. Too bad our politicians care not to follow suit.

Eric L. Speed  
Senior database consultant  
Database Environments  
Barrington, N.H.  
wlspeed@compuserve.com

## Article misrepresented some open-source facts

**I**D LIKE to briefly respond to a couple of points in the article "Fostering an Open-Source Path" [Technology, Sept. 13]. You quote D. H. Brown Associates research analyst Greg Weiss, who notes that open-source licenses, in general, work more in favor of users than against them. "You really only have difficulties when you want to modify the [code] and redistribute it," he says. "Most companies aren't doing that."

This is a red herring. I would narrow Weiss' statement by saying that you have difficulties only when you want to modify the code and redistribute it with few rights than you received. While some open-source licenses have other restrictions, this one is pretty much universal.

As for the statement that with open source, a hacker could theoretically integrate dangerous code into a product and redistribute it to unknowing customers—that is simply laughable. Any company with security procedures so lax that it unilaterally accepts new source files of random origin has a far bigger problem, and even open source can't help.

One should expect any meaningful "security debate" to use verifiable facts and ac-

tual cases rather than straw men. But if any argument will do, then perhaps we should reopen the debate on the flatness of the Earth or the number of angels that can dance on the point of a pin.

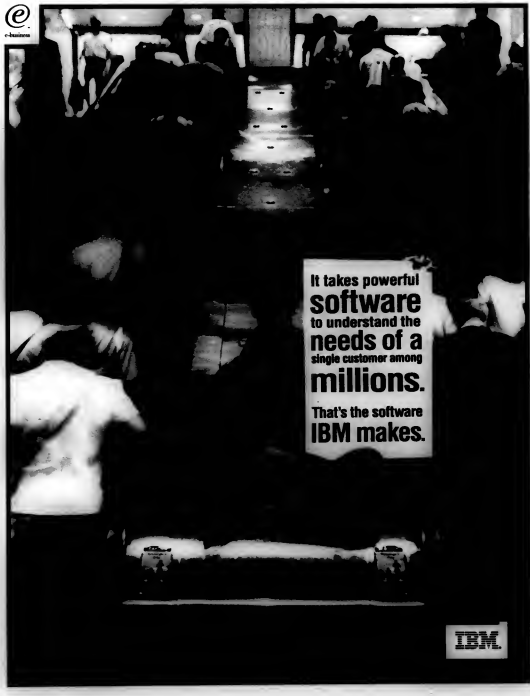
Gregory Gaurin  
Freelance software engineer  
Tempe, Ariz.  
ggaurin@arrm.org

**A** LOT OF PEOPLE in the programming community will quickly point out that open-source software is not free software. However, this well-written article makes no distinction between the two. It even goes further and makes a factual mistake of calling Linux open-source software. For starters, Netscape's Mozilla is open source, whereas Linux is free software.

You can find out more about the distinction at [www.gnu.org/philosophy/free-software-free-dominion.html](http://www.gnu.org/philosophy/free-software-free-dominion.html).

There are many reasons why open-source software has been out of favor with the free software proponents. An article on that could better serve your readers.

Prasad Galla  
Corporate Research Center  
Atotal USA  
Richardson, Texas  
gallaprasad@atotal.com

A high-contrast, black and white photograph of a large crowd of people in a dark space, possibly a convention hall or arena. The people are mostly seen from behind, looking towards a bright light source at the far end of the room, which creates a strong silhouette effect. The floor is reflective, showing some light patterns.

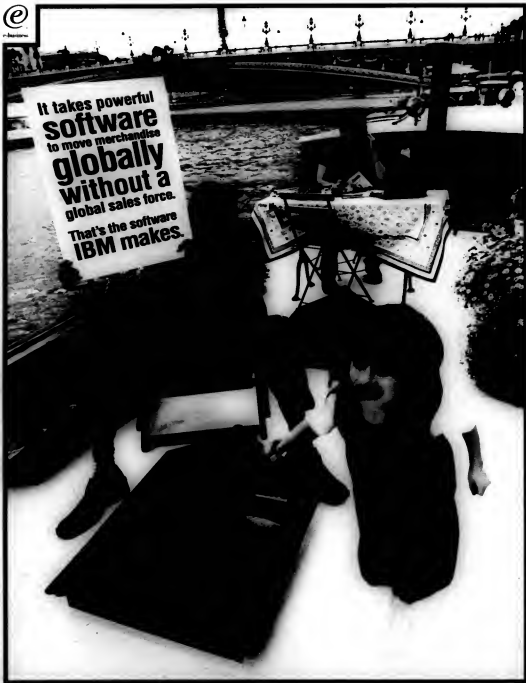
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e-business is about people, systems and companies connecting in completely new ways. They will be drawing information from systems that are not naturally compatible — and depending on the instant availability of that information to do what they do. It's a vast, complex, interconnected world that must be made practical, simple and easily accessible to an almost unimaginable variety of users.

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[illegible]

# BUSINESS

## SERVICES FOR TECHNOPHOBES

Eastman Chemical's technophobic customers are reluctant to buy PCs, but the company is trying to get more efficient and offer new information services anyway. It persuaded 200 customers to buy online, though they still demand that their familiar customer service rep be on the other end of a speed dial. **▶ 44**

## MERGING IT

Supermarket profit margins are razor-thin, so the IT that supports the business has to be stable and efficient. Super-Valu's CIO, who has overseen mergers and divestitures, says people are the key to making the mergers work — if IT counterparts don't connect at merging companies, it can spoil the whole business. **▶ 48**

## LOSING LAPTOPS?

Keeping track of mobile devices can be almost impossible. But by following central asset management policies they may not have bothered with before, organizations like Sears and United Health are doing it — and sometimes saving money on maintenance fees for machines they no longer own. **▶ 48**

## WOE TO LAGGARDS

The Internet has already changed everything in business, Peter G. W. Keen writes. But an astonishing number of tech and business people are just not keeping up with the new realities, he charges. **▶ 52**

## SELF-SERVE HR

The hype in HR for the past several years has been about self-service apps for employees. HR pros at a recent gathering said the hype is finally turning into browser-based reality. **▶ 46**

## WALL STREET IGNORES IT

IT investments can make a firm more efficient, help it find new lines of business and sources of revenue or drag it down into an inefficient, incommunicative heap. But Wall Street doesn't consider how good a company's IT is when it's time to value the stock. **▶ 54**

## MONEY TO BURN

Venture capital comes from people with too much money and goes to Internet entrepreneurs who soon will have too much money, right? Sometimes. Other times, venture capital goes from IT organizations to start-ups that can supply bleeding-edge technology ahead of the competition. Business QuickStudy **▶ 60**

## OVERBLOWN REQUIREMENTS

The language in leases can make demands of end users that are completely ridiculous — like holding them responsible for a manufacturer's Y2K problem. Joe Auer found. **▶ 62**

## MORE:

Advice ..... **62**  
Careers ..... **58**  
E-Commerce ..... **44**  
Opinion: Peter G. W. Keen ..... **52**



## MASTERING IT OFFICE POLITICS

**RONALD SZOC** (above) almost got squashed in a failed office coup, before he realized that office politics can shape or destroy the careers of IT people. Even when everyone means well, conflicting priorities can set IT people up for a fall, no matter how good the systems they build.

# 58

# Business-to-Business Lender Foresees Fast Growth Online

Actrade Capital hopes to quadruple revenue with seven-figure IT investment

BY THOMAS HOFFMAN

**A**CTRADE, business-to-business credit service is hoping to quadruple its revenue by mid-2000 in part by screening the creditworthiness of potential customers online.

Next month, Somerset, N.J.-based Actrade Capital Inc. will install a new Web-based credit and collections software package "to help us take advantage of the exploding" business-to-business online marketplace, said Alex Stenkus, president and CEO of Actrade Capital. The company, which booked \$250,000 in revenue in 1993, is on schedule to hit \$125 million in revenue this year, he said.

Stenkus said he created Actrade to fill a void in the corporate credit industry. Companies that handle high volumes of business, such as paper manufacturers, often need to purchase millions of dollars

worth of raw materials — purchases way beyond the limits of corporate credit cards.

Historically, asset-based lenders would provide manufacturers with a letter of credit worth up to 80% of the amount they needed to purchase goods and allow them to pay off the loan, with interest, over 90 days. Actrade has taken that a step further by offering 100% financing for up to six months for about the same interest rate.

Industry analysts expect the market for business-to-business e-commerce to swell to more than \$300 billion per year by 2002, which would increase Actrade's potential customer base.

If it works as expected, the new credit-checking software from Westwood, Mass.-based eCredit.com will "allow us to grow our existing business while allowing us to grow new businesses" by acting as an outsourcer providing credit and collection services, said

Sam Ingram, Actrade's director of marketing. Actrade expects to install the software next month as part of an information technology overhaul that will cost in the low seven figures, then stress-test it through the end of the year.

The eCredit.com system was

designed to improve the speed at which corporate credit approvals can be made by automatically screening prospective customers and streamlining financing for them, said Carol Baroudi, an e-business analyst at Hurwitz Group Inc. in Framingham, Mass.

Ingram acknowledged that the eCredit system used by Actrade "won't be as instantaneous as we'd like" because the company will still need to check a customer's credit ratings and talk with banks the customer works with before issuing credit. Still, he said he hopes the system will speed credit approvals overall. For example, Actrade is developing its own credit scoring system, which it plans to use in conjunction with eCredit to determine how much credit to extend to a customer, said Ingram. ■

## Eastman Chemical Pulls Customers Online

Offers discounted PCs, Net service

BY JULIA KING

Eastman Chemical Co. is moving swiftly into the brave new world of e-commerce, and it's taking its customers from the archconservative, century-old chemical industry with it.

Earlier this year, the \$4.5-billion Kingsport, Tenn., company launched eastman.com, an online service on which its U.S.-based customers can place and track orders electronically.

Now, it's helping customers — many of which are small or old-line companies with limited information technology — get discounted PCs from Dell Computer Corp. and Internet service from UUNET Technologies Inc., plus around-the-clock technical support.

Long accustomed to placing telephone orders with agents dedicated to their accounts, purchasing agents at Eastman's customer companies can be outright technophobic. But since July, 200 of Eastman's customers have signed up to do business with the company online.

Both initiatives are part of a broad and aggressive "clicks and mortar" strategy that capitalizes on IT to transform the company from purely a manufacturer of polymers and other chemicals to a product and electronic-services company helping existing customers do more business online.

"As margins on commodity products get slimmer, we need

to offer other services," said Roger K. Mowen Jr., vice president of Eastman's new e-commerce unit known as CustomerFirst.

Through CustomerFirst, Eastman also has set up a \$180 million venture capital fund, which it recently tapped to invest in ChemConnect Inc., an online, digital marketplace for chemicals.

Here the primary goal is not to create another sales channel, but to "learn from their [auction-oriented] business model" to stay ahead of the electronic-business curve, said Mowen, adding, "I don't want to learn after I've been whacked. I want to see it coming."

Internally, Eastman also is moving virtually all of its procurement online using technology from Commerce One Inc.

"CustomerFirst is the platform we have for changing the company, which we could not do without a separate venture because the culture is too conservative," Mowen said.

For example, because CustomerFirst is a separate entity — with the chance that it could be spun off as a public company eventually — Mowen can use stock options to attract skilled IT professionals who might otherwise ignore the company in favor of Internet start-ups.

CustomerFirst also has brought over about 40 workers

from Eastman's 500-person IT group, which has been on an aggressive retraining push for the past three years, according to CIO Bob Dorsey.

"Five years ago, we had less than 30% of folks equipped to work in Web applications, the Internet, electronic-commerce infrastructure and other new technologies. Now, we have more than 70%," Dorsey said.

Moving Eastman's customers to the new technologies has been another story.

"One of our biggest hurdles has been our [pre-Internet] customer service expertise," said Anne Kilgore, manager of IT for e-business.

"We have an excellent customer service organization that we fine-tuned over the last 50 years. A lot of our customers say, 'Why would I go online

when I can just push the speed-dial button on my telephone and get to a dedicated customer service agent?'" Kilgore said.

Eastman customer David Allen at Britec Inc., a roofing materials manufacturer in Morrilton, Ark., orders from Eastman online. It's much faster, accurate and more efficient than placing several phone calls per day, he said.

But Britec isn't ready to give up a dedicated Eastman sales representative. "I made it quite clear I would not be as high on Eastman Chemical if they removed the human element," Allen said. ■



ACTRADE CEO Alex Stenkus says IT overhaul will help him grab a bigger piece of the booming business-to-business e-commerce market

**EASTMAN'S Roger Mowen: Primary goal is to stay ahead of e-commerce curve**

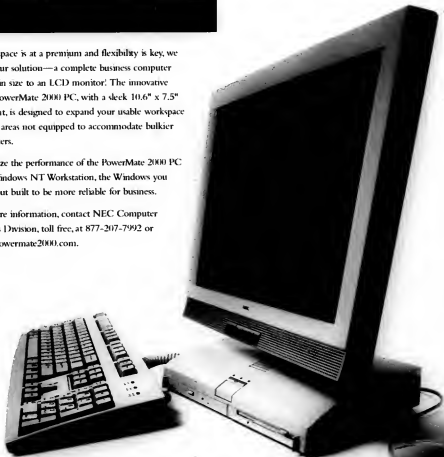
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# IT Plays Key Role in Mergers Among Supermarket Chains

**SuperValu CIO: Matching systems, goals with counterparts can make mergers work**

BY SAM LAIS

**W**HEN SuperValu Inc. last month added Richfood Holdings Inc.'s 93 supermarkets to its chain, it was only the latest move in an industry-wide game of supermarket Pac-Man.

With profit margins at a skinny 2% to 3%, the slimmest economies of scale can put a grocer in clover.

Robert W. Borlik, CIO at Minneapolis-based grocery giant SuperValu, spoke with *Computerworld* about the role of information technology in mergers and about keeping profit margins stable.

**Q: SuperValu and Richfood, Va.-based Richfood seem to have similar business strategies. Both**

**have been acquiring other chains, and both have in the past year sold off properties that weren't core to their business. How similar are their information systems?**  
**A:** From a business-model perspective, Richfood and SuperValu are pretty much alike.

But in any merger, I can't emphasize enough how important it is to have a clearly articulated business strategy that goes from senior management down to people working at every level. Because the biggest challenge is getting everyone running from the same playbook. You want to have those business goals so you can say, "This is

the direction we want to go; this is what's important." You don't want people fighting over what screens will look like or what terminals they'll use.

**Q: When you acquire a company that has good IT systems, how do you decide which system to standardize on?**

**A:** First, you should ask, "Should you merge one system into another?"

[SuperValu and Richfood] are dealing with the same business issues, but not necessarily the same suites of applications. We've decided on [adopting] a single set of core applications. So the question is not how to merge one system into another, but how to transition both onto a shared set.

What we're doing is picking a new set of applications, a sort of "best-of-breed" strategy.

**Q: Where do you start?**

**A:** It's a big effort. It has to start with what's required by the company's business plan. Our business, the whole industry, is traditionally very low-margin, so it has to be very efficient.

The most efficient model is a single set of applications and well-managed systems that let you react quickly to market conditions.

**Q: What issues are most important to consider before and during a merger of systems?**

**A:** If a company is astute enough, it'll bring in the IT people up front. Often in an acquisition, they'll reach an agreement and then bring in the IT departments. We were part of the team from the beginning, so we were able to go in and evaluate and plan to make it a smooth transition.

**Q: Before an acquisition, how do you evaluate the target's systems?**

**A:** It's pretty much a courting dance. At the beginning, it's hard because you see only the level of information that the lawyers agree to. But you look at multiple sources and hope-

fully you get an idea of what's out there.

**Q: What advice would you offer CIOs facing mergers?**

**A:** Make sure the company has a good strategy of what they want to do with the business. If you don't know what the business goals are, you won't know how to effect those goals. Getting control of information is important, but also getting to a common set of ideas on what you do with that information.

Get together with your counterpart in the acquired company to make sure you're on the same page. A lack of reliable information can disrupt a department, and you don't want to lose the knowledge experts in the other company. You depend on those people almost more than you do on the systems. Anytime you can leverage their wealth of experience, you're ahead. It's not easy, because they're thinking we're eliminating their work because they're merging. ■

## MORE ONLINE

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**ROBERT W. BORLIK:** "The biggest challenge is getting everyone running from the same playbook."

## Browser May Bring About Self-Service HR

**Web interface has sparked interest**

BY JIM COPE

CHICAGO SPECIAL TO COMPUTERWORLD

Although vendors and human resources experts have been talking about self-service human resources administration for several years, attendees at the HR Technology Conference and Exposition in Chicago late last month saw concrete evidence that the concept is taking hold.

"The renewed interest in self-service has a lot to do with the Web interface," said Alice Mongerson, an attendee at the conference and manager of the global human resources information systems initiative at Rockwell Automation Corp. "There has been acceptance of the idea of managing your own information, such as stock portfolios, airline reservations and so on using a Web browser, which brings a sense of famil-

ilarity to users, whether they're managers or employees."

Gartner Group Inc. analyst Jeffery Comport echoed Mongerson's conclusion in a conference panel discussion on human resources systems trends. "The browser is becoming the de facto computer interface," Comport said. "Where there are transaction applications and where I'm interacting with a database, it's going to be through the browser. Simplicity is going to rule."

### Browser Users

One example: Boston-based Interlynx Technology Corp. recently signed up Compaq Computer Corp. and Cummins Engine Co. to use its InterAction browser from end, adding to a customer lineup that includes MIT and Boston Scientific Corp.

"We use PeopleSoft, but we weren't happy with the front end," said Nick Messerschmidt, Boston Scientific's director of global human re-

sources information systems. "Interaction works seamlessly with our PeopleSoft database and also gives us the look and feel of a real Web application."

"Interlynx has a core product and add-on functional applications," Messerschmidt explained. "We have gone into the management self-sufficiency piece initially. The next piece is employee information. Then we will build an HR service call center. If an employee can't solve their problem with the Web tool, they can call the service center."

Self-service human resources "lets HR people do the work you hired them to do," Messerschmidt added. Otherwise, "you're using college-educated HR professionals to push paper around. We call it 'administrivia.'"

"Everything is going to be self-service," agreed Jim Holmbeck, Giga Information Group Inc.'s area director. "It's all going to be personalized with the browser." ■

## SNAPSHOT

### Internet Transaction Opinions

1	How I shop online wouldn't change	28%
	I would make fewer purchases online	67%
	I would never shop online again	5%
2	Yes	55%
	No	4%
	Not sure	41%
3	Flat 3% to 5% federal tax	55%
	State tax based on merchant location	15%
	State tax based on purchaser location	26%
	Doesn't matter	10%

Source: Survey of nearly 1,000 online shoppers

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# Keeping Tabs on Mobile IT

It's hard to keep track of all those laptops, PDAs and cell phones. But by educating end users and employing tools, companies can manage these assets and control costs

BY JOANNE WEXLER

**M**ANAGING IT assets has never been easy, but now telecommuters and mobile workers are further complicating the task. That trend has even fueled new asset management projects at some companies.

The total cost of ownership of notebook computers has outpaced that of desktops, providing financial incentive for keeping a tighter grip on them. According to Gartner Group Inc. in Stamford, Conn., the annual total cost of ownership of a "road warrior" notebook is more than \$12,000, compared with about \$40,000 for a desktop PC.

Tracking cellular phones and personal digital assistants (PDAs) remains largely a manual process. That's because these devices tend to stay isolated from the corporate network and thus can't be "autodiscovered" (or located, associated with a user and logged by a software-based management tool), notes Jeffrey Williams, a general partner at Ventana Group, a Gridley, Calif., company focused on asset management systems integration. "This makes establishing business processes for tracking

items even more important," he says.

IT managers say it's a huge challenge to convince upper-level managers that the investment in time, software integration efforts and asset management repository tools will pay off. Tony Abate, director of technology acquisitions at UnitedHealth Group in Hartford, Conn., suggests starting small. "I chose the simplest, cheapest tool I could find for a basic asset repository that didn't require 100 programmers to modify," he says. "We focused on getting our arms around a single asset and achieving one small success." Once he was able to prove the returns of that effort, it became obvious to everyone that it made sense to move ahead, Abate says.

At Sears, Roebuck and Co. in Hoffman Estates, Ill., store buyers' mobility, plus a rise in telecommuting, drove an asset management program that went fully live in May, says Susan Ben, director of distributed technologies. The entire company now shares a common asset repository to enable the stocking and redeployment of assets.

Ben says Sears isn't casual about disposing expensive laptops. "Every laptop that leaves the building is signed out and signed back in," she says.

After a \$2.1 million investment in software integration and tools, UnitedHealth immediately began saving \$1.5 million per year, primarily by not paying maintenance fees on equipment it no longer had. Later, integrating the asset management repository with purchasing and accounting systems and adding software autodiscovery tools saved another \$2.5 million, resulting in a quick payback on the \$2.1 million outlay.

Similarly, Residential Funding Corp., a subsidiary of General Motors Acceptance Corp., is saving "a couple million" per year with an asset management database linked to the company's human resources package, says Greg Ogdahl, the company's information security officer. The company holds individual departments financially responsible for equipment deployed to its employees, says Ogdahl. He says his biggest challenge in launching the program was training users to fill out the paperwork for lost assets and to register with the asset management system when they and their equipment move to another part of the company.

"I advise first educating users, then starting your massive manhunt for inventory," Ogdahl says. "We did it the other way around and probably could have saved four to five weeks. We discovered that 70% of our IT assets had moved and then had to reverify everything."

Voice assets such as cell phones fall last on some companies' management priority lists, mainly because they're inexpensive compared with other assets. Ben and Abate say they tend to track the billing associated with them rather than the devices themselves. "Our asset management database gets a feed from the human resources systems and validates that bills coming in match employees who are still here," Abate

says. "If they don't match, we cancel the service or calling card."

Bottom line: Information technology assets aren't as stationary as they once were and thus are easier to lose. Here are some tips for getting your arms around them:

- Hold users or department heads accountable for their assets. Asset management systems integrated with enterprise resource planning systems can generate monthly reports about who has what in his possession. Form a policy requiring each department to double-check that the report matches what the department really has and to update you if something is out of sync.
- Require that employees leaving the company turn in the mobile IT assets assigned to them at their exit interviews.
- When assets are ordered in bulk — say, 100 notebooks — a purchasing system will log them as a single line item. But make sure that when records of the purchase flow to the asset management system those notebooks become 100 separate items.
- Record product returns and order cancellations in your system so you don't think you have items that you don't.
- Restrict end users' administrative rights and define who has the authority to install notebook (and desktop) software.

And if you've been tracking assets for Y2K readiness, keep the ball rolling. It's a good excuse to get your asset management house in order. ■

Wexler is a freelance writer in Campbell, Calif. Contact her at joanne@wexler.com.

## Supporting a Notebook Computer

According to Gartner Group, it costs a company an average of \$12,074 per year to support a notebook computer that's used out of the office at least 80% of the time. Here's how it breaks down:



SOURCE: GARTNER GROUP INC. \*BASED ON 20% OFFICE USE, 80% OUT-OF-OFFICE USE



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## WORKSTYLES

### What It's Like to Work at... eBay Inc.

**Interviewer:** Mia Bird, senior engineer, features and functionality.

**Company:** eBay Inc.

**Main location:** San Jose  
**Number of IT employees:** Company can't break down employment numbers.

**Number of employees (and search):** 325

**Teamwork with company:** Since July 1998

**What's different about working at a dot.com company?** "You have to be able to dig in wherever you're needed. We have groups that handle all levels of the site now, but when I joined, it wasn't that way. You don't do just the user interface of a feature, but also the database part and the kernel code."

**What features have you worked on?** Gift Alert, extend your feedback

feature to include a response and follow-up mechanisms.

**Dress code:** "Jeans and button-downs or polos or T-shirts - as long as you're dressed professionally."

**How would you describe the work environment?** "I wouldn't come to work in a tube top. But shirts and a T-shirt on a hot day are not a problem."

**Workday:** Varies. "I generally come in between 9:00 and noon, depending on my meeting schedule. But I tend to stay later. A typical day is about 10 hours."

**Then what's a long day?** "Sixteen hours plus. A really long day would be overnight, when we're in the process of posting new features live to the site and we have to watch it."

**Kind of office:** All employees are in cubicles, including the executives and founders. "It's nice to not feel like I have to go knocking on someone's door if I need to go talk to them."

**What do you see in people's cubicles?** "Some people have trade on the site, so they have some of whatever they collect - like Pez dispensers. I have a lot of beach-tacky things in mine. My personal favorite is my first wheels collection. I have two sets of tracks with the loops and the figure eight and all that."

**Must people carry beepers?**

**Call phones?** "Yes. I'm on a beeper and I'm not called on all the time. But I'm not called after hours that often - maybe once a week."

**Percentage of staff that telecommutes on a given day:** "Not many. We're in an environment where we all need to work together as a team, and that makes it difficult to telecommute. You could work part of the day from home, like if you're waiting on a delivery or something, but you need to show up at some point."

**On-the-day care?** No.

**Is there cafeteria or other food service?** No.

**Where do people go for lunch?** "Just beyond the office park are a bunch of places - you just have to cross the fence to get to a Boston."

**Market:** Starbucks, Noah's Bagels, Java Juice, Fresh Choice [a salad bar] and Whole Foods Market.

**The one thing everyone complains about:**

"Our hosts are all named after reptiles, and we're starting to run out of reptile names."

**Is there an office mascot?** "Not that I'm aware of. There's a giant Pez beetle and green in the older building."

**Little perks:** "We have a lot of company recognition events, like a barbecue to celebrate our one-year anniversary of going public. We have a company picnic. We had an Easter egg hunt once, and the eggs had gift certificates inside. And we get company T-shirts."

**Last company-wide or department party:** A Founders Day party, on-site in a courtyard, to celebrate the company's four-year anniversary.

**Would employees find comfortable e-mailing the CEO?** "I think so."

**Quote:** "We work hard, and we play hard. What we do is a lot of fun. We're heart stars of people who are on hand stamps, and they're hand stamping on now they're making a living from it. And it feels good to be a part of that." - Leslie Goff



## Business as usual, 1999

PETER G. W. KEEN

**S**AY A COLUMNIST had to write about business on the Internet without making a single prediction, talking about any startups' new technologies, discussing forecasts or mentioning technology or a technology company. What would he write about? The answer: business as usual - and very big business at that. Here's a list of just a few of the events and figures of

1999 that meet the "without" criterion. They show how much the Internet has already transformed the economy. It's not the future we have to get ready for. It's the present.

■ A study by the University of Texas reports that Internet companies are 60% more productive in terms of revenue per employee than non-Web ones and that the total Internet economy was \$300 billion in 1998.

■ Bank One launches its independent Internet bank, WingspanBank.com, that offers much better deals than the well-established parent does: around 12% higher interest on certificates of deposit, for instance - 5.20% vs. 4.9%.

■ Federal Express handles 70% of all customer transactions and queries via the Web; its goal is for that number to be 100%. The average savings is \$80 per query - for 60 million messages per day.

■ Japan announces the full deregulation of securities commissions: On Sept. 30, the commission for the purchase of \$9,000 worth of stocks was \$105. On Oct. 1, it was \$22 via ETrade Japan and \$6 via Nikko Securities. Japanese consumers have about \$10 trillion in personal savings, almost all in bank savings accounts that gain little or no interest.

■ Merrill Lynch, whose vice chairman in mid-1998 described online securities trading as a danger to U.S. financial health, announces its own online venture. And 60% of Charles Schwab's revenue now come from Internet trading.

■ Amazon.com's run rate - its annualized rate of sales - reaches \$2 billion; this is the equivalent of building about 150 superstores.

■ The following companies are all generating more than \$1 billion per year in revenue via the Web: Ingram, UPS, American Airlines and Schwab.

■ The U.S. Department of Commerce reports that 40% of all new car buyers in 1998 used the Web in their search and evaluation of options and that the conversion rate - inquiries and leads that turn into a sale - is 40% for the Web vs. 15% for dealers.

What the list highlights is that for information technology professionals to play a role in everyday business now, they must hone their business knowledge fast. Equally important, business managers had better hone their technology knowledge fast. That may read like a truism, but in my recent travels, I've been surprised by how little both IT professionals and businesspeople know about even their own area of this business-Internet fusion.

In just the past three weeks, I've mentioned application service providers to several very savvy IT friends and colleagues and have gotten a blank look. The same was the case for the Jini and Epcot operating systems and such companies as Exodus and Ariba. These aren't "exotic" Internet terms but part of business as usual.

Similarly, when I talk with business managers, I realize that very few bother to keep track of what's going on in their own competitive arenas. They don't seem to recognize the Internet's impact on business basics like supply-chain management, logistics, customer relationship and retention strategies, pricing and margins.

Yes, I am aware that there must be plenty of comparable gaps in my own knowledge base. That's part of the problem of keeping up with this new business as usual: not knowing that you don't know.

For me, there are four key topics areas where everyone in business needs to build understanding: Internet technology basics; Internet business basics; the Internet services industry; and advanced technology, business and services, depending on your own area of work. Obviously, education is only a part of this, but the first three items in this list of four are now really Technology 101, Business 101 and Logistics 101. Together, they add up to Careers 101. ■

It's not the future we have to get ready for. It's the present.



Keen is chairman of Keen Education, as well as an author and consultant. His Web site is [www.peterkeen.com](http://www.peterkeen.com), and he can be reached at [peter@peterkeen.com](mailto:peter@peterkeen.com).

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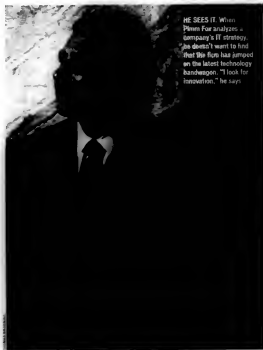
Verizon

# Stock Watchers

## Turn Blind Eye To IT

If you think IT should boost your company's stock price, think again. Most Wall Street analysts don't make the connection

By Kathleen Melymuka



HE SEES IT. When Penn For analyzes a company's IT strategy, he doesn't want to find that the firm has jumped on the latest technology bandwagon. "I look for innovation," he says.



# For the Bookshelf

*Titles on becoming an SAP consultant, Dilbertian office humor and coping with call center stress*

**BY ALAN R. EARLS**  
**Becoming an SAP Consultant: Your Guide to Professional and Financial Success**  
 By Garrett M. de Bryn and Ken Kries  
 Prima Publishing, Rocklin, Calif., 1999;  
 254 pages; \$29.99, hardcover

The territory this book sets out to cover is vast, and the authors do a remarkably thorough job of taking the reader along for the ride. The book presumes little — you won't need a lot of preparation to pick it up and get going. And it isn't, by any means, a technical manual, although there are some technical pointers. Instead, *Becoming an SAP Consultant* offers a mixture of primers on SAP technology, job search skills and other basics.

Each of the chapters is well organized, succinct and to the point. The tone is collegial, and the advice is credible. For example, the chapter on résumés isn't just a rehash of the latest résumé do's and don'ts; it's an almost line-by-line discussion of how to make every part of your résumé work in the SAP market.

For those with more experience or who want to ride SAP as far as it can take them, there's detailed advice on where in the (two) world the SAP opportunities are greatest and how to professionalize your delivery of skills to maximize your earnings.

This book isn't lacking as far as presentation is concerned, either — it's laid out like a well-designed textbook. And, indeed, that's just what it is for those hitching their wagons to SAP.

**The Joy of Work: Dilbert's Guide to Finding Happiness at the Expense of Your Co-Workers**  
 By Scott Adams  
 HarperBusiness, a division of HarperCollins Publishers, New York, 1998;  
 264 pages; \$22, hardcover

Scott Adams and Dilbert are great — and widely popular — not only because the comic strip's humor has managed to be original, but also because the humor has captured the stresses and problems of modern work life, particularly information technology work life.

Dilbert fans will find *The Joy of Work* to be at least as satisfying as the syndicated cartoon — possibly more so — because the book features both cartoons and longer Adams essays on things like saying "yes" but never fol-

lowing through, thinking in opposites and office pranks. There are also dozens of funny e-mails, which Adams has chosen from among the thousands he receives in response to the strip.

Adams has obviously not produced a serious career book, but *The Joy of Work* nonetheless ought to be considered for a career bookshelf — both as a tool

for keeping your spirits up and as a source of the many truths about work and life that Adams illuminates.

Of course, some of Adams' stature comes from the fact that he has no competition in the office humor department. Still, a yuck is a yuck, and Adams never fails to serve them up in abundance.

**Tele-Stress: Rules for Call Center Stress, Second Edition**  
 By Stephen Coscia  
 Telecom Books and Flatiron Press, New York, 1998; 125 pages; \$14.95, softbound

Call centers are big business — often, in fact, mission-critical business. And IT operations must often support corporate call centers or operate their own to support users and business functions.

If you're involved in a call center operation, Stephen Coscia's mixture of folksy "been there, done that" advice, along with tidbits of relevant research, will come in handy.

As the title implies, Coscia focuses on the inherent difficulties that call center personnel face. They are, after all, on the front lines — expected to have instant and correct answers for a wide variety of problems. This demanding environment is tough on people, and Coscia focuses on methods for making the environ-

ment less stressful that can be implemented by individual staff members (though the pointers apply to management, too).

They include getting an understanding of your own metabolism, identifying how and why you respond to particular stresses and communicating more effectively with clients.

Although this isn't a sophisticated book, it does offer useful advice that can be called immediately by anyone in a call center environment.

**Power Etiquette: What You Don't Know Can Kill Your Career**  
 By Dana May Casperson  
 Amacom Books, New York, 1999; 208 pages; \$14.95, paperback

Regardless of how much they are ridiculed, manners are vital for keeping a civil society functioning smoothly. In the workplace, where people, by definition, must work together effectively, manners are perhaps even more crucial.

*Power Etiquette* is a book of manners for the workplace with an emphasis on using manners to make oneself more effective and respected.

And while most of us probably think we have already acquired all the manners we need, a quick read of this book may change that opinion.

All too too easy, after all, to see our social interactions from our own vantage points. Dana May Casperson helps us set aside our assumptions and view real-life work situations more honestly. There are lessons to be learned here that apply directly to IT life: setting the right tone with contractors, being assertive but not abrasive with vendors and knowing how to express more effectively what might otherwise turn into a string of invective directed at some unfortunate colleague.

Most important, Casperson offers a sensible set of rules for effectively engaging with others. She covers relations with bosses and clients, as well as situations such as formal dinners, telephone and videoconferences, gift-giving and more. There are also references for adjusting manners to fit different situations around the world.

Although every page of this book contains valuable insights, it's not as readable or as concisely presented as it could be. This book demands undivided attention. However, for those anxious to polish their self-presentation skills, it will doubtless provide the promised reward. ■

*Earls is freelance writer in Franklin, Mass. He can be reached at [alanearls@norfolk-county.com](mailto:alanearls@norfolk-county.com).*






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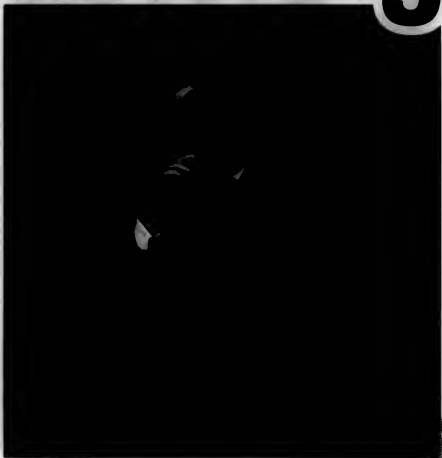
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# Mastering



There's no avoiding office politics, no matter how often IT professionals profess their dislike of it. Yet according to many seasoned veterans, engaging in corporate politics can not only achieve goals, but it can also make work a more pleasant place to be. They say it all depends on how you do it By Erik Sherman

IT'S BEEN MANY YEARS since Ronald Sloc learned his first lesson in office politics — the hard way.

The classroom was a small consulting arm of Westinghouse Electric Corp. All six employees were saying they felt the group's director was doing a poor job. Quickly, Sloc found himself planning a bloodless coup with his peers.

Word of their plans leaked prematurely, and three management representatives from the corporate parent flew to Evanston, Ill., to meet with them at a hotel. Discussions were brief.

"We were told in summary fashion, 'We don't care how you feel. We don't care how good or bad a job you think he's doing. He's critical to the operation of this group because of his reputation and background. Without him, there is no group. Now, any questions?'" Sloc remembers.

For Sloc, now a senior vice president at Ruesch International Inc., a Washington-based currency trading firm, the experience was an epiphany. "I thought, This is not about the questions of truth and efficiency and productivity," he says. "I realized there was a political dimension to organizational life."

Doing politics well starts with remembering that there are two types: negative and positive. The former involves the backstabbing, conniving and scheming that many associate with the word.

Positive politics, as Sloc puts it, is "the art of influence and persuasion," two skills that must be part of a basic skill set for information technology professionals.

Technology has become critical to business, especially as companies turn to e-commerce strategies. All corporations have conflicting needs and conflicting departments that can clash at IT's doors — all of which can make political finesse even more important than programming felicity.

"You have the politics of product promised to get to market in certain time frames," says Judith Meskill, executive director of switched-service delivery and support at SBC Internet Services in San Francisco, which works under such labels as Pacific Bell Internet Services and Southwestern Bell Internet Services. "You have the politics of serving your customers. You have the politics of keeping your current systems robust. If you allow people to keep pushing things in that funnel, you wind

up in a situation that's fairly untenable."

With influence and persuasion, it's possible to mediate among these competing issues, but only through clear communication. Although that may seem obvious, anyone who deals with specialized work and vocabulary — and technical personnel are very much included — can fall into unconscious habits of using words that effectively repel others.

"What we do is fairly arcane," says Gary Norris, vice president of research and development at Widen Enterprises Inc., a major prepress and printing operation in Madison, Wis. "Because we do it every day, it becomes routine to speak in shortcuts. It is very useful to learn to listen to other people and to listen to the words behind the words to solve a problem or embrace an opportunity." Norris says IT staff should imagine themselves in the position of others. "How would you like to be treated?" he asks.

#### Politics from the Top

Even with the best communication skills, politics ultimately has to begin at the top. Though she has seen her share of political bloodbaths, Meskill says she finds a remarkable lack of negative politics at her current employer. She attributes much of the clear atmosphere to top-level meetings that allow issues to come out and be resolved before they reach the IT queue. Upper management has specifically designed the system, which even includes an appeals process, to diffuse politics and get things done.

Sloc has a similar experience, regularly working with the two owners of Ruesch in "a healthy three-way tension." These approaches to politics are organizational in nature. Unfortunately, there are many dysfunctional businesses in the world, where useful politics departs and the negative variety comes to fill the void.

"I think it's just politics of frustration. I don't see a lot of ladder-climbing," observes Doug Brong, a programming

## Learning the Ropes

There's no quick track to positive office politics any more than there are silver-bullet solutions to technical problems. Ronald Sloc, for example, has been at Ruesch International for 15 years. But it's only in the past two or three years that he thinks he has gotten the hang of it.

In other words, while learning to work with nontechnical departments, expect to feel some of the time. If you didn't make mistakes, there would be nothing to learn, says Sloc.

Aside from learning by doing, finding a healthy organization is key. "I think politics in different organizations is different," says Judith Meskill, executive director of switched-service delivery and support at SBC Internet Services. "The slots [here] have been granted by the highest-level executives to make this all work, so as a result, it's a thing of beauty." To concentrate on the good and minimize the bad, ask about the process for conducting IT projects. If management buys into a scheme for creating priorities for work, you have a good start. — Erik Sherman

consultant in Minneapolis. Though he remembers office politics when he worked in the defense industry, Brong was pulled out of that fray by retiring out on his own in the late '70s. He now finds a good atmosphere with his regular clients but still sees his share of backroom brawls among others that are largely caused by an atmosphere of uncontrolled demands.

"[People] want the Internet, they want the database, they want this and they want that," says Brong. "People either don't understand how to do it or they can't get enough resources to get it done." The result: Projects are mediocre, and employees turn to negative politics in an ill-formulated attempt to cope.

Organizational change may be beyond the power of the IT department, especially at the staff level. Brong, however, says many employees could find some degree of relief by sharpening their technical skills. "A lot of these younger people are looking to office politics," says Brong, who adds that he sees the less capable turning to office politics as a coping mechanism. In such a situation, Brong says, management must help the IT staff get the resources and help it needs to manage its products and services.

Even with the best training, IT people may still find themselves fighting a losing battle and spending too much time dealing with Machiavellian machinations. In such cases, focusing on good politics and learning to tolerate a certain amount of the bad may be the best course. ■

Sherman is a freelance writer in Morristown, Mass.

# Politics

# Venture Capital

BY TOM DUFFY

**V**ENTURE CAPITAL was once a field that was dominated by well-heeled entrepreneurs. Today, though, corporations have gotten into the act in a big way. Take GE Capital Services, which has invested in companies such as 12 Technologies Inc., a supply-chain software vendor in Irving, Texas, and Streamline Inc., an online shopping service in Westwood, Mass. GE Capital invested in these two companies to gain access to leading-edge technologies.

Three others: Schaumburg, Ill.-based Motorola Inc., which took a stake in a frame-relay market, StrataCom Inc., in the early 1990s, three years before the frame-relay market came of age.

Even the CIA is getting into the picture. Last month, the federal agency better known for spying revealed that it has launched a \$28 million fund in Silicon Valley to invest in new security and privacy technologies, among other things.

Such investments make sense for organizations that are interested in getting early access to the right technology, says Paul A. Strausmann, a *Computerworld* columnist and former CIO at Xerox Corp.

"The track record of corporations investing [internally] in new technology development is notoriously awful," says Strausmann. "So they are saying, 'Why should I take the risk and have all that potential

## DEFINITION

Venture capital is money invested through private partnerships in start-up companies, which aim to develop for a few years, then sell stock to the public. Most start-ups raise venture capital at least twice before they are established enough to offer stock. Most recent high-profile start-ups backed by venture capital have been Internet companies.

turnover, when I can sit here and leave it to somebody else?" Think of venture capital as the fuel on which high-tech start-ups run, at least until they can make it on their own. Take it away, and you can forget about the Internet boom, the PC boom and every other computer-related boom that has happened since silicon was first married to a chip.

"Because it tends to concentrate in the very crucial stages of business development, it has a disproportionate effect on the economy as a whole," says Benoit Leleux, an assistant professor of finance now on leave from Babson College in Wellesley, Mass. "It's a relatively small amount of money that goes a long way."

The typical venture capital firm is a partnership of three to six investors, each of whom has experience in the field in which he invests. There are more than 500 venture capital firms around the country, according to the National Venture Capital Association (NVCA). The best have been

## Where's the Money?

Nearly 59% of \$26 billion in venture capital that was invested in the second quarter of this year in the U.S. went to start-ups in three states:



SOURCE: NATIONAL VENTURE CAPITAL ASSOCIATION, JULY 1999

around for decades and have a proven track record of investing in successful companies.

The U.S. is, by far, the world's leader in awarding venture capital. There was more than \$30 billion in private venture capital under

management last year in the U.S., compared with just \$79 billion in Europe, according to NVCA statistics.

Entrepreneurs turn to venture capitalists for seed money once they have developed a business idea, researched the market to gauge the viability of the concept and created a strategy for how to make their business work. But raising venture capital isn't easy.

The typical venture capitalist might review 1,000 or so business plans per year and invest in only five or six, according to John Nesheim, author of *High Tech Start Up*. But Nesheim says that only about two out of 10 firms that get venture capital ever proceed far enough to raise money in an initial public offering (IPO), which is the typical way investors reap profits.

"The odds are about six in a million of your idea becoming an IPO," Nesheim says. Worse, a large percentage of companies funded with venture capital either fail or return a meager profit.

Start-up companies typically get several rounds of venture capital at different stages of their growth. In recent years, first-round amounts have grown significantly, says Leleux.

"The typical first round might be \$3, \$4 or \$5 million," he says. "But we're seeing first-round deals being done of \$15 million or \$20 million, which is amazingly large."

Entrepreneurs pay a price for the capital. Because the risk to investors is so high, venture capitalists demand an ownership interest in the company which, for initial rounds, can run from 5% to 30%.

While subsequent rounds might raise a larger amount of money, entrepreneurs typically have to give away less of the company because it is more established and, presumably, the risk is far less, according to James Treybig, a partner at Austin Ventures (see related story).

If the company is successful, venture capitalists can make back several times their initial investments.

Venture capital is largely concentrated in a few areas of the country (see chart). Of the \$7.6 billion in venture capital invested in the second quarter of this year, 40%, or \$3.04 billion, went to California, according to NVCA statistics.

Entrepreneurs may find that there's more than just a financial advantage to being located in an area where venture capital is plentiful. Typically, venture capitalists will take a seat on the company's board of directors and will consult regularly about strategy, market conditions and other dynamics of growing the company's profits.

"Venture capital is much more than just money," says John S. Taylor, the NVCA's research director. "The venture capitalist becomes an adviser and mentor and otherwise is actively involved in the company."

Duffy is a freelance writer in Northampton, Mass. Contact him at [tduffy62@compuserve.com](mailto:tduffy62@compuserve.com).

## Jimmy Treybig: Venture Capitalist

In the mid-1970s, Jimmy Treybig worked in the Silicon Valley venture capital firm Holman Pfenner Caplan & Oyster. He later went on to found Tandem Computers Inc., then returned to the venture capital world three years ago.

Treybig has changed.

"I used to be that a big venture capital fund was \$50 million," he says. "Now I know of funds that are \$1 billion. And most of this is going into e-commerce and to...

dot-com companies."

Treybig is a partner at Austin, Texas-based Austin Ventures, the state's largest venture capital firm. As with many venture capitalists, he knows about the business from both sides. In addition to financing Tandem, several years ago he helped found Tandem Software Inc., an Austin firm that provides e-commerce applications encompassing data security and high availability. Treybig says today's venture firms

are looking for companies with the potential to dominate their fields.

"I used to be you would start a small company and maybe it would get profitable," he says. "But today, people are trying to invest these instant big companies. The focus is market share, not profitability."

Treybig is involved in a handful of companies, including Internet start-up MyNetwork, a network that connects financial firms and brokers who sell their services, and ClearCommerce Corp., a maker of Internet transaction processing soft-

ware. Both are located in Austin.

Recently, Treybig has been helping MyNetwork focus its spending in the wake of raising more than \$20 million in a third round of venture financing. At ClearCommerce, he is helping to improve software quality and using his industry connections to help identify new customers.

"I'm not careful to only work with companies where I can be there to talk and mentor," he says. "If you're a sophisticated venture capitalist, you want to be able to help. And if the investment is to be done, you can help a lot more." — Tom Duffy



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## Y2K spawns dastardly contract clause

**A**N ONEROUS PROVISION recently came to light in a major leasing company's lease schedule. Seemingly, the leasing company is so concerned that year 2000 difficulties may impact the finances of its lessees that it has included an overly zealous "gotcha" provision in its documents. The provision is in a separate equipment schedule and reads like this:

"Lessee shall take all action necessary to assure that its computer-based systems are able to process data effectively, including dates and date-sensitive functions. Lessee represents and warrants that the year 2000 problem will not result in a material adverse effect on Lessee's business condition or ability to perform hereunder. Upon request, Lessee shall provide assurance acceptable to Lessor that Lessee's computer systems and software are or will be year 2000 compliant on a timely basis. Lessor shall immediately advise Lessor in writing of any material changes in Lessee's year 2000 plan, timetable or budget."

Obviously, this provision has the lessee warranting compliance over a broad range of possible Y2K failures — not only its own computer systems, but also anything and anyone else's. And did you catch the totally open-ended

commitment to "provide assurance acceptable to Lessor?"

However, the basic problem here is that the customer, as is typically the case, is using a lessor to finance hardware and software supplied by a third party. How many suppliers of hardware or software will give this type of warranty on their products? None. Then why should the customer step up and make such guarantees for its suppliers?

As bad as this provision is, it gets even worse. The master lease agreement in this case treated a lessee default on one

lease schedule as a default on all lease schedules. Consider this: Several customer divisions lease under this master agreement. If one division has a Y2K problem causing a default, the lessor can declare all leases in all divisions in default. What a mess!

What can you do if you encounter this? Do you point a lessor to your company's SEC reports for status and an assessment of Y2K readiness. Publicly held companies must disclose Y2K readiness in their quarterly and annual SEC filings. If you're prepared,

this information alone should be enough.

If you're not a public company or if the lessor pushes for some kind of Y2K provision in a lease agreement and you want to compromise and offer one, then it should be as narrow as possible and given only with the consent of your legal counsel.

### Mailbag

Here's a classic example of unethical vendor behavior that I received in response to my July 5 column on the auto manufacturer that was slapped with unprecedented, high-way-robbery upgrade fees on a software package it couldn't do without.

In Wichita, Kan., a private contract programmer agreed to write and develop a database system for a dentist's office. The agreement for support specified that the dentist would pay the developer "time and materials" for any required modifications, corrections or upgrades.

Unbeknownst to the dentist, the developer set a record limit in the system that would require the dentist to call the de-

veloper to "fix" an alleged "file size problem." The problem occurred after a predefined number of new patients — which was set by the developer — were entered into the system. When called, the developer updated a single parameter, saved the change and charged for two hours of time (travel included).

Well, ain't that a kick in the teeth? This went on for a year, with "file size problems" occurring every week.

Steve Kershaw, supply-chain manager at Veridian Engineering in Indianapolis, was visiting with a receptionist in the office and found out about the problem.

He called the dentist's office staff that it was peculiar and that someone else should look at it.

Luckily, they took his advice, and the parameter was set to a very large value. The alleged file size problems went away.

Thanks for the contribution, Steve.

Please e-mail your painful learning experiences or war stories. We can all benefit. Thanks. ☐



Joe Auer is president of International Computer Negotiations Inc. (www.internationalcomputer.com), a Water Park, Pa., consultancy that educates users about high-tech procurement. KCM sponsors Cactus, the association of high-tech acquisition professionals. Contact Joe at [jauer@icni.com](mailto:jauer@icni.com).

## BRIEFS

### Customer Retention

Atlanta-based Equifax Inc. has introduced a new product intended to help financial services companies retain customers who might otherwise transfer their credit-card balances to competitors.

The product, called Equifax Attrition Navigator, provides a framework for developing customer retention strategies and avoiding costly attrition losses.

### Schwab to Trade Late

Charles Schwab & Co. has just announced plans to offer its retail and investment customers a chance to trade most Nasdaq Stock Market Inc. and a select list of stocks dur-

ing a separate after-hours trading session that will run from 4:30 to 7 p.m. Eastern time, Mondays through Fridays.

The service, which the San Francisco-based brokerage plans to launch next month, will let customers place orders via Schwab's Web site or by phone, for standard bid and execution schedules.

### AMR Gets Web Tix

AMR Corp., Fort Worth, Texas-based parent company of American Airlines and Delta Inc., has hired ResNet Inc. in Dallas to implement a Web-based system that will streamline its ticket archiving and retrieval processes. The system, scheduled to go live early next year,

will run on Delta General Corp. servers and will deliver images and data to desktop Web browsers utilizing AMR's corporate worldwide internet.

### Lending-Service Boom

LeapNet Inc. ([www.LeapNet.com](http://www.LeapNet.com)), an Internet-based commercial real estate listing service, has announced that its LeapNet.com originated system is averaging \$100 million in loans per month. LeapNet.com is an Internet-based system that matches borrowers and lenders online.

The service, which is free for borrowers and brokers, was designed to reduce the time and costs associated with applying for commercial real estate loans by offering a single platform to obtain loan information from major lending institutions.

## Sporting Automation

The Sports Authority Inc., a sporting goods chain in Fort Lauderdale, Fla., has bought a merchandise planning system from MarketStar Inc. in Danvers, Mass. The system will be integrated with Sports Authority's inventory management system from EDI Corp. in Marietta, Ga.

## CIO Relocation

Jackson Tung has been named CIO of New York's Board of Education Division of Management Information Services. Tung, who has more than 20 years of information technology managerial experience, was vice president and CIO at Landmark Healthcare Inc. in Sacramento, Calif.

## SNAPSHOT

### Where Will Health E-Bucks Be in 2003?

KEYWORD	EXAMPLE	MARKET
Business-to-business e-commerce	Chemdex	\$188B
Business-to-consumer e-commerce	Drugs.com	\$28B
Connectivity and health care information systems	Healthnow	\$6B
Information content sites	DrRx.com	\$400M
TOTAL MARKET		\$205.4B



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# TECHNOLOGY

## WINDOWS MADE EASIER

A new set of tools from Enevo lets IT managers model and test the Active Directory structure in Windows 2000 before deploying the new operating system.

Meanwhile, new installation tools from Microsoft and others are easing the pain caused by conflicting Dynamic Link Libraries. **70**

## SHARE DATA DISCREETLY

Start-up Syncra Software thinks it has found a way to help companies share supply-chain data with partners without opening their books to competitors. **72**

## EXCHANGE GROWS UP

Collaboration via Microsoft's Exchange will be getting a lot easier and more powerful. The forthcoming version adds more robust data management features and gives a nod to the instant-messaging phenomenon — but only under Windows 2000. **67**

## OPINION

Microsoft gets lots of press — good and bad — but that's because it knows how to work the system, writes reviews editor Russell Kay. **71**

## TIGHTER LINKS

J. D. Edwards is linking its ERP systems with other applications, using batch interfaces in the

short run with plans for faster message-based links by next fall. **71**

## GRAPHICAL HANDHELDS

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## SERVING CHIPS

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## HOW TO THINK LIKE A HACKER

WE EXPECTED TO LEARN A LOT of neat tricks when we sat in on an advanced hacking class taught by Ernst & Young. What we didn't expect to learn was how easy it still is to crack corporate systems — and how little remorse we would feel doing it. If you're not worried about data security, you will be after reading how advanced hackers work and think.

# 78



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# Microsoft's Exchange 2000 Takes Aim at Lotus Notes

Not your father's e-mail: Exchange 2000 Server adds real collaboration, but only under Windows 2000

BY RUSSELL KAY

**U**NTIL NOW, Lotus Notes pretty much had the groupware space sewn up. But with last week's announcement of

Exchange 2000 Server, Microsoft became a major player. For information technology managers, Microsoft is positioning Exchange 2000 Server, which runs only on Windows 2000 Advanced Server as a key part of its new Back Office Server suite and—at last—a real Microsoft alternative to groupware platforms such as Lotus Development Corp.'s Domino.

Eric Lockard, Exchange general manager, said Microsoft targeted the following goals for the new product:

- Enhance its current messaging and collaboration platform.
- Increase productivity via Web-based collaboration and storage.
- Improve communication and add new methods.

Exchange 2000 provides a base for collaboration and interactivity. Built with code from Microsoft Commercial Internet System, it should scale to tens of millions of users, said Lockard.

The server offers enhanced performance and supports active/passive clustering. There's better routing, and Multipurpose Internet Mail Extension

(MIME) messages are stored in native form instead of as rich text.

Windows 2000's Active Directory provides the access model. Exchange Server 5.5's unlimited transaction database can now be distributed over multiple servers. An Active Directory Connector handles bidirectional replication.

Exchange 2000 stores all data in the Web Store, which can be distributed. Every Web Store item has a unique address, regardless of format or data type, which makes content accessible over an Intranet or the Web via a browser or Outlook Web Access. It also simplifies full-content indexing.

Internet Explorer 5.0 is an important part of the package: active server pages run directly from the Web Store. Nat Ballou, a program manager at Microsoft, said the company has made an effort to provide complete functionality and data to non-Internet Explorer browsers.

The Web Store uses the fast and well-developed navigation of Active Data Objects and OLE/DB to find an item, then passes it to the Collaboration Data Objects (CDO) 3.0 for processing. That's a bit like adding object-oriented data handling to a relational navigation structure. The Web Store isn't truly object-oriented, Ballou noted, because it lacks inheritance properties.

Users access the Web Store via HTTP and Distributed Authoring and Versioning, a set of HTTP collaboration extensions. The data/response format is Extensible Markup Language. CDO also works with other tools.

Exchange 2000 adds new communication formats: instant messaging, videoconferencing, and a T120 conferencing server for voice and whiteboarding. Exchange 5.5 had limited messaging abilities, but Exchange 2000 handles voice, video and fax. As new forms of communication appear, they, too, must be served without impeding network performance. They must be handled without conversion or translation.

Microsoft considers instant messaging important, said Microsoft program manager Sonu Agarwal. "It's different from other messaging types because it

carries 'presence' information about which colleagues are online right now, and it facilitates fast communication and prompt turnaround."

A Corporate Preview Program will provide a beta release of Exchange 2000 Server with Windows 2000 Release Candidate 2, Outlook 2000 and training materials. It can be downloaded from Microsoft's Web site or ordered on CD.

Your watchword should be: "Wait and see." This new server is much more than a simple version upgrade or point release. Microsoft has addressed many weaknesses and gaps in Exchange 5.5.

Exchange 2000 seems robust and well designed, but it will be some time before the marketplace weighs in. A big factor will be the requirement for Windows 2000 Advanced Server. IT administrators finishing Y2K makeovers and Windows NT 4.0 deployments won't get excited about rolling out another new operating system. Maybe in 2001! ■

## MORE ONLINE

For updates on electronic messaging, visit our Web site:  
[www.computerworld.com/news](http://www.computerworld.com/news)

## Exchange Server 5.5 vs. Exchange 2000 Server

### WHAT'S DIFFERENT

#### Exchange Server 5.5

- Windows NT 4.0 Server
- Has its own directory
- Unlimited database
- Scalability to 100,000
- Active/passive clustering
- Separate administrative console
- X.400 routing
- Rich-text content
- Access through Outlook
- HTML, HTTP support

#### Exchange 2000 Server

- Windows 2000 Advanced Server
- Active Directory
- Multiple databases
- Scalability to 10,000,000
- Active/active clustering
- Microsoft Management Console
- Fault-tolerant SMTP routing
- MIME content
- Access from many clients, Web
- Adds XML, DAV

### WHAT'S COMPLETELY NEW IN EXCHANGE 2000

- Web Store
- Policy-based administration
- Instant messaging
- Content indexing
- OLE/DB, ADO support
- Streaming

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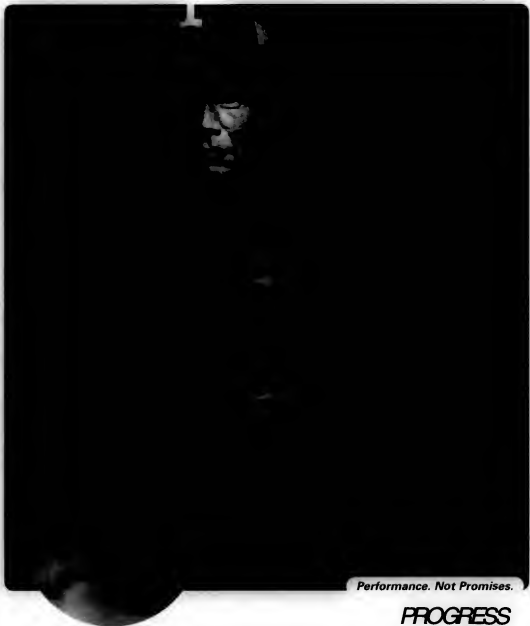
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# Tool Gives Windows CE App Development Boost

**CE Suite may help tool-starved CE developers — and assist the handheld operating system as well**

BY MATT HAHNLEN

**W**INDOWS CE developers got an assist in building applications for embedded systems and handhelds last week as Rogue Wave Software Inc. announced CE Suite 99. The Boulder, Colo., company said the tool can help build charts and grids in CE applications.

CE Suite adds one more weapon to a rather skimpy arsenal of Windows CE developer tools, said developer Paul Saunders at Rifocor Corp. in Camarillo, Calif.

The dearth of CE tools led Saunders to Rogue Wave. "There is a plethora of tools for Win 98 and NT, but for Windows CE, there is very little, if any," he said.

Saunders said it is a popular myth that Windows CE is easy to develop ap-

plications for, especially if you are a Windows developer. "Everybody says if you can develop for Windows 98, you can develop for CE, but there's really no knowledge base yet," Saunders said.

He has used a beta version of the new CE Suite to build a CE application for handhelds that technicians in the field will use to test fiber-optic networks.

## Time-Saver

The kit allowed Saunders to develop an application that can quickly convert readings into charts so that users can rapidly and easily spot trouble areas, he said.

Priced at \$1,495 per developer, CE Suite 99 will provide "enormous benefits" to companies, Saunders said. "Writing our own charting tools is very time-consuming, and time is something most companies don't have."

There are factors that differentiate

the development of applications for Windows 98 and CE, Saunders said. For example, Windows CE machines run in color or gray and have a smaller screen, he said. Also, CE is a Unicode environment with no physical storage. "It requires a great deal of rethinking," he said.

Analyst David Kelly at Harwitz Group Inc. in Framingham, Mass., said he agrees that there's a need for more CE tools.

The lack of a feature-rich development tool may be one reason "Windows CE hasn't taken off as fast as Microsoft wants," he said.

For now, Rogue Wave is competing directly with Microsoft Corp. for CE



**BETA USER PAUL SAUNDERS** welcomes Rogue Wave's CE Suite: "There is a plethora of tools for Win 98 and NT, but for Windows CE there is very little, if any."

developer market share, Kelly said.

International Data Corp., also in Framingham, puts the overall market for tools for embedded operating systems at \$33 million in 1999; it is expected to grow to \$753 million by 2003. ■

## IBM Aims New Chips at Web

**Power4 microprocessor aims to help servers keep up with e-commerce**

BY NANCY WEIL

IBM is readying a new generation of chips intended to handle the ever-expanding server loads created by Internet use and e-commerce.

The company unveiled plans for the chip, called Power4, last week at the Microprocessor Forum in San Jose. IBM's intent is to create a generation of chips that make the whole computer system work faster, focusing particularly on memory bandwidth, rather than concentrating on ramping up the speed of the processor core alone, the company said in a statement.

IBM didn't disclose availability and pricing for Power4.

Aimed at high-end servers, each Power4 chip will include two 1-GHz processor cores as well as Level-2 cache memory and will boast more than a mile of copper wiring and 170 million transistors, IBM said.

The bandwidth capacity of the bus between second-level cache and the microprocessors is more than 100G byte/sec., or equal to relaying 20 full-length movies in one second, according to IBM.

## Seven-Layer Design

Featuring a seven-layer metal design, the Power4 will be made at the IBM Microelectronics fabrication plant in Burlington, Vt., using 0.18-micron process technology.

The chips will be housed in glass ceramic packaging that allows up to eight processors to fit into a palm-size unit, IBM claimed.

The chip uses both copper and silicon-on-insulator (SOI) technologies developed by IBM Microelectronics. Copper leads to better performance because it can handle a higher current for a longer time and allows for more transistors on a chip, IBM said. SOI further boosts performance and decreases power consumption. ■

We'll write for the IDG News Service in Boston.

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# Application, Heal Thyself

**Windows 2000  
tools help repair  
overwritten files**

BY DAVID ORENSTEIN

**T**HE WINDOWS Installer in Windows 2000 doesn't guarantee users an escape from "DLL Hell," but early users say the operating system's installation technology is a big slice of heaven.

DLL Hell is the most infamous and costly manifestation of the precarious ease with which newly installed Windows applications can overwrite the essential files of other Windows applications on a PC or server.

A Dynamic Link Library (DLL) performs a function, such as data access, that many applications often need. Windows Installer can't prevent new applications overwriting vital DLLs, but by storing the names of all the files associated with an application in a database, it can quickly determine what is missing and restore it.

The database architecture is a quantum leap over the old model of installations used in earlier versions of Windows, which relied on ad hoc scripts written by the developer, said Bob Friedman, CIO at communications and financial services provider 800-777-Club Inc. in El Monte, Calif. "There was no back-end record of that file once the product was installed," he said. Now there is.

## Clean Universals

The better record-keeping of the database will also make clean universals possible where they were difficult before, added analyst Brian Kalra at Aberdeen Group Inc. in Boston.

Users say the so-called "self-healing" quality will save them tremendous quantities of time and money. The release last month of installation development tools from InstallShield Software Corp. in Schaumburg, Ill., and Wise Solutions Inc. in Canton, Mich., has allowed users to begin testing Windows Installer even before the release of Windows 2000. The



FRANKLIN LIFE systems analyst Bill Rogers is counting on Microsoft to simplify the distribution of key DLL files.

tools allow users to configure the underlying database and write scripts to guide the installation. They also alert developers about which files to include in the installation package.

A modest 30-member help desk at the Church of Jesus Christ of Latter-day Saints in Salt Lake City supports ge-

nealogy applications at 3,000 churches worldwide and in the homes of more than 400,000 members, said Don Sringham, a senior programmer/analyst.

In the past, the church has fielded help desk calls and sent out disks with patches to fix applications that had been broken by DLL conflicts with oth-

er software such as Microsoft Office, Sringham said. Because Windows Installer can fix problems automatically, the calls and disks may no longer be necessary. Windows Installer is new in Windows 2000 but can run on older versions of Windows.

The Franklin Life Insurance

Co. in Springfield, Ill., expects similar savings in supporting its 2,000 field associates, but Microsoft Corp. has to hold up its end of a bargain it is making with users, said systems analyst Bill Rogers.

## One Less Headache

Independently of Windows Installer, Microsoft has told users that it will simplify the distribution of key DLL files by including new ones with operating system upgrades. By distributing them with the operating system, Microsoft will relieve developers of the need to distribute them with applications. "It would make my day a lot easier if they go that way," Rogers said.

Microsoft is also directing users and independent software vendors to move away from the once favored development model in which DLLs reside in the operating system directory and are shared by many applications. Now, to prevent conflicts, Microsoft recommends that they be installed in the application's directory.

The management headache of keeping track of DLLs in each directory may be mitigated by Windows Installer's use of a database architecture to track them, Rogers said. ■

## Tool Set Eases Move to Windows 2000

**Lets administrators  
model, test Active  
Directory structure**

BY SAMI LAIR

Managers planning to migrate Windows NT servers to Windows 2000 can get help from a new tool set, Managed Migrations from Entero Corp. in Arlington, Va.

Managed Migrations, released earlier this month, lets administrators model and test the Active Directory structure in Windows 2000 before deployment into production systems. Active Directory is a hierarchical database of users, networks, subgroups, servers and printers. If access rights aren't correctly assigned and coordinated, users can be cut off from resources. And "no one wants 100 users calling to say they can't print," said Michael

Silver, an analyst at Gartner Group Inc. in Stamford, Conn.

Migration management tools from a competitor of Entero's, Mission Critical Software Inc. in Houston, will be included in Microsoft Corp.'s Windows 2000. But "most enterprises will need more than the basic tools," said Silver.

The Associates, a financial institution in Irving, Texas, is using Entero's migration manager in its transition from a mixed environment of Novell Inc. NetWare and Windows NT to all NT, and ultimately to Windows 2000.

"We needed to replicate the directory [information] we had in NetWare, structure it better and move it to NT — and we needed a better tool to do it," said Corey Wallace, director of Intel server engineering at The Associates.

"I'd rate the technology eight on a scale of 10," said Wallace,

who noted that the directory and organizational structuring capability isn't yet as flexible as he would like. When adding users, "you inherit the characteristics of the parent organi-

zational unit, [so] it doesn't let you strip out certain characteristics," he said. "We found workarounds, but it wasn't the ideal architecture."

Flexibility is key in moving to Windows 2000 and Active Directory because NT's flat domain structure allows an administrator only to turn administrator rights on or off. Active Directory's hierarchical domain structure allows the creation of subgroups, which let a manager delegate some tasks, such as giving help desk staffers some administration rights but not others.

Fastlane Technologies Inc. in Halifax, Nova Scotia, also makes a migration tool, but Entero combines its migration manager with strong administration capabilities and a novel pricing structure.

Managed Migrations usually costs \$19 per managed account, but Entero is selling a one-year license for \$10 per managed account. The license cost can be applied to the \$19 purchase price. ■

**Windows 2000 Migration Tips**

- Budget two people for three months for a 2,500-user organization
- Model and test before you migrate to prevent disruption to users
- Reserve all "culture updates" with Active Directory, roles changes
- The Windows 2000 skills gap will reduce smaller professional services to help design the new platform

RUSSELL KAY/COMMENTARY

# The Microsoft massage

**I**N 20 YEARS of reporting on information technology, I've been accused of bias in favor of companies and against companies. I've never taken such accusations seriously because, for any company, I've been challenged in both directions by different readers on the same story. But the question's fair, and I'm fair game. To keep up with technology, IT managers have to rely on the news, reviews, evaluations and opinions in the trade magazines. They need some confidence that what they're reading isn't slanted or distorted.

The truth is, I am most definitely biased. I get paid to report facts and observations, sure, but also to develop and refine my evaluations and opinions (read: biases) about technology issues and products.

I'm constrained by what I already know, what I can discover, where it comes from and how many words I'm allowed. Is it surprising that most of the information I work with as a technology reviewer orig-

inates with vendors? Who else can tell me what's under development so that I can weigh it and come to a conclusion?

## Reality Check

Then there's reality. Say I call up vendors S, C and M to learn about their products. Vendor S doesn't return my calls. Vendor C sends a packet of standard corporate fodder. But Vendor M immediately re-

sponds with press releases, technical papers and customers I can talk with. Whose products am I going to have the most to say about?

The vendors who complain the loudest about lack of coverage are often the least helpful and cooperative beforehand. Vendors set unrealistic expectations; one told me I could get my hands on their product only if they controlled what I tested and with whom I compared them, and if they "approved" my review before publication.

Well, that helpful Ven-



RUSSELL KAY is Computerworld's reviews editor. He can be reached at russk@compuserve.com.

dor M is Microsoft, the industry's all-around evil empire, and its primary public relations agency, Waggener Edstrom. Whatever you think about its products or business practices, Microsoft's willingness to bend over backward to deliver information and ready access to its technical people is unparalleled.

At times I agree not to disclose information before a certain date. But in exchange, I get lots of data, beta software and time to evaluate it. Buying that time lets me do a better job interpreting that product for readers.

Marshall McLuhan said, "The medium is the message." Microsoft's version is subtly different: "The media are the message," and it knows how to take it one step further. It thoroughly massages the media. ■

## J. D. Edwards Plans Apps Links

*Faster, message-based integration in the works*

BY CRAIG STEEDMAN

Last spring, J.D. Edwards & Co. began surrounding its enterprise resource planning (ERP) software with other applications it bought or retooled. Now it's moving to tie the packages together so they don't look like a collection of different products to users.

The Denver-based ERP vendor this month plans to release an initial set of interfaces between its OneWorld applications and external tools for supply-chain planning, customer relationship management and online procurement. Also due out is a portal-style user interface that will provide a single entry point into the applications from Web browsers.

The new interfaces will transfer data between applications in batch mode, J.D. Edwards said. But by next fall, it plans to develop message-based links that can pass information almost as soon as orders and other business transactions get processed.

That kind of integration is a must-have for users such as Houghton Inter-

national Inc., a Valley Forge, Pa., maker of specialty fluids. Houghton's U.S. operations are installing OneWorld and a separate production scheduling tool that J.D. Edwards acquired when it bought Toronto-based Numetrix Ltd. in June.

The ability to quickly feed data from OneWorld to the Numetrix software could make it easier for Houghton to fill emergency orders from manufacturers, said John Schroeder, the company's manager of sales administration and ERP project manager.

Dave Bilyeu, CIO at Bassett Furniture Industries Inc., said the Bassett, Va., furniture maker also wants to use its new J.D. Edwards system to give customers instant updates on where products are located in the production pipeline.

Bassett plans to finish installing a mix of OneWorld and J.D. Edwards' older IBM AS/400 green-screen applications by January, Bilyeu said. Then it will look at companion products such as the Numetrix tools and front-office software J.D. Edwards resells from Siebel Systems Inc. in San Mateo, Calif.

Real-time messaging between the applications would be helpful "as long as there are no bridges that I have to build myself," Bilyeu said. "The biggest grief of having multiple vendors is the integration." ■

## MORE ONLINE

For resources related to J.D. Edwards, such as stories and FAQs, visit our Web site: [www.computerworld.com/edwards](http://www.computerworld.com/edwards)

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# Can You Keep Your Data a Secret?

Start-up Syncra Software offers a secure supply-chain collaboration system

BY STEVE LUPADER

**A**RE YOU READY to share critical data with your trading partners? Really critical data? The kind your competitors are probably paying industrial spies to steal right this very moment?

Syncra Software Inc. is betting that you are. And the Cambridge, Mass.-based start-up makes a persuasive argument that the benefits accrued from opening the books to suppliers and customers far outweigh the risks.

Syncra's supply-chain collaboration product, C2, rigorously follows a set of guidelines called Collaborative Planning, Forecasting and Replenishment (CPFR). The company hopes its commitment to CPFR differentiates it from such larger supply-chain vendors as Manugistics Inc. (which also has a CPFR-complaint product), Logility Inc. and i2 Technologies Inc.

But how much respect will CPFR earn in the marketplace? Syncra's fate may hinge on the answer.

According to the U.S. Department of Commerce, there are \$1 trillion worth of goods in the supply chain at any given time. "Improve efficiency only 20%," says Syncra President Jeff Stamen with a missionary's zeal, "and you cut that down by \$200 billion."

And that 20% improvement isn't out of reach, according to one Syncra customer — a supply-chain executive at a large U.S. corporation who requested anonymity. In a pilot program, his company quickly found such obvious problems as suppliers shipping too much of a seasonal product in its off-season and too little of a product the week it was heavily promoted in a sale.

"The inefficiencies are amazing," says Stamen.

This is where CPFR comes

in. It's a set of guidelines created by the Voluntary Inter-industry Commerce Standards Association ([www.vics.org](http://www.vics.org)). The goal is to improve efficiency in the supply chain, from stem to stern. You do that by using Internet technologies to share more of your data with trading partners.

Getting businesses to make such information available is no mean feat, Syncra acknowledges. "Companies don't want this data in the wrong hands," Stamen says. "Wal-Mart suppliers may be willing to share it with Wal-Mart, but they sure as hell don't want to share it with other suppliers."

But Stamen and analysts say that in the past year, as the value of information has become better understood, the corner has been turned.



**EFFECTIVE SUPPLY-CHAIN MANAGEMENT** means data is shared with partners and leaked away from competitors, says Syncra President Jeff Stamen

## Syncra Software Inc.

Location: 1 Cambridge Center, Cambridge, Mass. 02142

Telephone: (617) 218-4300

Web site: [www.syncra.com](http://www.syncra.com)

Niche: Standards-based collaborative forecasting software

Why it's worth watching: If CPFR guidelines catch on, it's poised to be the market leader.

### Company officers:

- Christopher Salem, founder, CEO
- Jeff Stamen, president
- Yves Shoff, founder, chairman of the board

### Milestones:

- April 1998: Company founded
- June 1999: Product introduced

Employees: 28, growing at 10% per year

Born money: Sologard Semantics Inc., Zero Stage Capital, Prism Venture Partners

Products: Syncra C2, a collaborative forecasting and planning application

Customers: Pilot projects with more than 20 large corporations, including The Sports Authority Inc.

Partners: IBM, Cambridge Technology Partners Inc. and others

### Red flag for it:

- If CPFR guidelines fail to catch on in a big way, it will be tough for Syncra to stay out of the shadows of bigger supply-chain players.

Syncra's C2 is a three-tier application. The client talks to an application server (written in Java) that in turn talks to databases such as Oracle and SQL Server. C2 takes in data in bulk form, according to Matt Johnson, executive vice president of product development. "Most of it comes from data warehouses, usually in once-a-week reports."

C2's data engine then compares data among trading partners, aggregates that data and points to anomalies. The fact that C2 works as an exception engine is crucial, the anonymous user says, because "you don't have to look at every single iStock-keeping unit every day."

Syncra says it has pilot programs going with more than 20 Fortune 100 companies.

To keep those pilots flowing, the company offers Quick Win, a rapid-implementation program. Quick Win tutors your organization and up to five trading partners — helping you set mutual goals, link up with collaboration technology and swap forecasts. At the end of the project, Stamen says, everybody involved has "a clearer understanding of the potential for rolling out CPFR practices throughout their organizations."

Pricing depends on the number of trading partners involved, with Syncra C2 Server starting at \$99,500. Syncra says a small application (up to 10 partners) costs less than \$300,000.

In the time-honored start-up tradition, Syncra has filled a gap left by larger competitors. Such gap-filling is tricky; the void must be big enough to support the start-up, but small enough that the big dogs (the Manugistics and i2s, in this case) let it slide.

Will Syncra pull it off? Analysts say the company's got a chance. In the CPFR market, competitors "are trying to extend what they already do," says Larry Lapide, an analyst at AMR Research Inc. in Boston. "Syncra's unique because they're so focused on it."

So while it's dangerous for a young company to hitch its wagon to a standard, Syncra looks to have chosen the right standard. And built the right wagon. ■

## the buzz

STATE OF THE MARKET

## Start-Up Company, Start-Up Concepts

### The Users

- The Sports Authority is a Syncra pilot user. Greg Mueller, the Fort Lauderdale, Fla.-based retailer's replenishment vice president, says that although his company just got C2 running, he's seeing benefits already. The convener? Looking at four months' historical data with trading partner New Balance Athletic Shoes Inc. "We found some pretty big discrepancies," Mueller says. "That was the lightbulb right there."

- A user at a large U.S. business who requested anonymity is expanding the program to three more trading partners already. Is he nervous about swapping vital data? Nope. He too was convinced "the wins far outweigh any risks."

### The Analysts

- AMR Research Inc.'s Larry Lapide explains the new cultural mind-set required by collaborative supply-chain planning. Trading partners "go from 'I want to beat you up on price' to 'I want to work with you to meet customer needs.'"

### The Company

- Syncra calls C2 an "interenterprise application." By its very nature, the product lacks outward playing in the space among companies.

- Identity crisis: Syncra initially lived the tag line "betweenness." "Mistake," groans Jeff Stamen, Syncra's president. "We got lumped in with the middleware people. We are an app, not middleware."

- Why is Syncra so interested in CPFR? Chief tech guy Matt Johnson was a major contributor to the standard. Johnson came from Benchmarking Partners Inc., where he was a player in an early-led collaborative planning between Wal-Mart Stores Inc. and Warner Lambert Co.

### The Standard

- CPFR is a "concept," its creators say. "It's always collaborative processes across the supply chain," using processes and technology models that are open yet secure, flexible and "extendable to all supply-chain processes." Tall order. But the led of participants is more than impressive, with Master of the Supply Chain Wal-Mart battling change. And with serious vendor support from i2, Logility and Manugistics (on and then in Syncra's corner), you've got to think CPFR has a bright chance. You can learn more at [www.cpr.org](http://www.cpr.org).

—Steve Lufader



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MultiSync FE7000*	17" (16")	0.25mm	1280 x 1024 @ 60Hz	Available Now
MultiSync FE750*	17" (16")	0.25mm	1600 x 1200 @ 75Hz	January 2000
MultiSync FE850*	19" (18")	0.25 - 0.27mm variable	1600 x 1200 @ 75Hz	January 2000
MultiSync FE1250*	22" (20")	0.25 - 0.27mm variable	1920 x 1440 @ 75Hz	January 2000

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\* Estimated street price for the MultiSync FE750.

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# Ways to Keep Tabs On Your Finances

BY DAVID EISEX

**P**ERSONAL-FINANCE programs are like dental floss and rowing machines: You know they're good for you, but you can't always find the energy to use them as often as you should. Recognizing this, software vendors have responded with cleaner, more Web-like screens and lots of features that speed data entry, such as automatic completion of fields and online data updates.

The software has come a long way since the mid-'80s, when Mountain View, Calif.-based Intuit Inc. introduced Quicken, its quaint check-balancing utility. Microsoft Corp. responded in 1991 with an imitator called Money.

For years, these very affordable programs have also provided electronic bill payment, investment portfolio management and long-range financial planning. And much more recently, they've begun to exploit the information-rich World Wide Web with daily updates of

stock prices and articles from financial gurus.

I entered my own financial data into the newest packages from Microsoft and Intuit, which have just released their yearly upgrades, as well as Kiplinger's NetWealth from Kansas City, Mo.-based Block Financial Corp., a distant contender.

Quicken and Money both come in three flavors: Standard or Basic, for simple account management and budgeting; Deluxe, which adds planning and investment tools; and versions for

home and business use, which augment Deluxe with functions such as invoicing, contact management and business-expense tracking. Quicken's fourth version—Quicken Suite 2000—includes Intuit's TurboTax software.

## Right on the Money

Overall, I've developed a slight preference for Money 2000 Deluxe, thanks to a generally cleaner-looking, more intuitive interface and more reliable links to online information. Quicken still knows the ins and outs of its original purpose—checking-account balancing and reconciliation—better than other products, and its browserlike screens are elegant and nearly as intuitive as Money's. NetWealth is feature-poor and chunky and isn't a serious option when you can get Quicken or Money for only \$10 or \$15 more. ■

Eissex is a freelance writer in Antrim, N.H.

identical to Microsoft's Money-Central Web site. I was especially wowed by the AutoCategorization wizard: Microsoft claims that a database of a half-million businesses is behind this feature. There isn't space to identify all the new features; suffice it to say that the planning, investing and educational tools have all been beefed up.

Although there are a few sticky problems with some screens, I find myself more comfortable in Money 2000 than in Quicken. Perhaps this is because my own financial life now involves much more online tracking of investments and financial news than check balancing—two of the very things at which Money excels.

## Kiplinger's NetWealth

Block Financial Corp.  
www.blocksoft.com  
\$49.95

Kiplinger's has mounted a credible challenge to Intuit's dominant TurboTax with its information-rich TurboTax software, but in the personal-finance arena, it isn't seen as a serious player. Kiplinger's NetWealth will do little to dispel that perception. It provides only the financial-planning component, plus some limited investment tracking, that Quicken and Money also provide, but without the check register and other tools for tracking your household budget. And it doesn't even do this particularly well.



NetWealth has a clumped-together, shrunken quality to it that overrules on the Web browser interface, down to the names of HTML documents that it displays in a Web address window. Like its competitors, it relies heavily as an up-front questionnaire to collect the data used in different modules. It's really just a collection of moderately useful tools for planning major life goals, held together with

minimal documentation. There are also tools that total your net worth, a tax estimator, a what-if calculator to see how changes in economic conditions might affect your portfolio and even a college locator.

But I found most of these tools to be simplistic, and the entire program is lag-ridden. I quickly put it aside to concentrate on the two real contenders: Quicken and Money.

## Quicken Deluxe 2000

Intuit Inc.  
www.quicken.com  
\$39.95

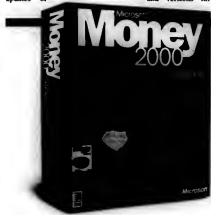
Quicken didn't become synonymous with PC personal finance by being a slouch, and this thoroughly feature-rich, rather complex upgrade demonstrates the breadth and depth of Intuit's reach into nearly every major aspect of the financial world. Besides linking to the parent company's financial site—as does Money—and offering a huge database of real-time financial quotes and news, Quicken 2000 has a slew of new features for shopping, planning and online tools that help you get a handle on everything from portfolio asset allocation to the market value of your car. And this year it lets you import TurboTax files.

Like Money 2000, the new Quicken has a streamlined user



interface, complete with browserlike back and forward buttons and tabs that keep the accounts you're working on conveniently accessible. But I found myself getting lost in Quicken 2000, and it awkwardly puts downloaded investment data into an online center from which you have to extract the information for each account. Money seemed to put downloaded data in the right places with less intervention. Intuit counters that people should be able to examine downloaded data before it goes into their formal records, but I maintain that the process could be simplified without sacrificing accuracy.

Still, the all-important check register shows the benefit of Intuit's long experience: It seemed to suggest relevant information more often and to require fewer keystrokes than Money's register. I'll switch back to Quicken when Intuit smooths out the interface.



## Money 2000 Deluxe

Microsoft Corp.  
www.microsoft.com/money  
\$64.95

In recent years, Microsoft has sought to distinguish Money by building in first-class portfolio tracking and Web links, and it now beats Quicken in these areas. It also sports a somewhat cleaner, more attractive graphical interface than, more important, is easier to navigate. It links the various modules in a more intuitive way than Quicken, which seems to hide things as you have to go hunting for them.

Now in this version—besides what Microsoft calls the "task-based design"—is a more detailed setup wizard that goes further than Money 98 to set up the actual accounts that are the program's hardwired building blocks—as opposed to Quicken, which takes. The portfolio section now is virtually

# Data Visualization

BY STEWART DECK

**S**OFTWARE TOOLS for representing data as pictures have been around for a while—many users remember the first bar graphs and pie charts they made from spreadsheet data. But advances in PC graphics-handling capabilities, coupled with a desire to get more detailed data into the hands of business analysts, have encouraged the development of advanced data visualization tools. And hot new ways of using technology such as data mining and customer relationship management are rich with data storehouses that visualization tools can bring into living color.

The most popular and useful data visualization applications are interactive graphs and models that let users drill down into the underlying data to reorganize and compare data so its meaning is clearer. Interactive maps, 3-D models and scatter charts also let users observe data change in real time.

## How They Help

Visualization tools can be useful in three areas, says Michael Embry, lead analyst for data warehousing at retailer AutoZone Inc. in Memphis.

"They can help extend statistical analysis, extend graphical presentation tools and be used as analytical applications by themselves," says Embry, who has tested visualization tools from Ottawa-based Cognos Inc.

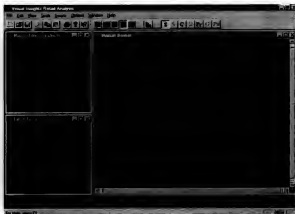
Bringing visualization to an enterprise usually requires a dedicated server to provide scalability and security, says Philip Russom, an analyst at Hurwitz Group Inc. in Framingham, Mass. A data visualization server can also provide specialized data management and distribution for large numbers of users.

Users who have employed data visualization include the following:

- **Don Dell'Antonio**, CIO at **Outback Steak** Inc., the Oshkosh, Wis.-based maker of children's clothing, uses the data

## DEFINITION

Data visualization is the graphical representation of a data collection, often in an interactive form. Modern data visualization tools present data to users as charts, graphs or maps and let users sort, subdivide and combine groups of data in graphical form to help discover patterns and illustrate what they've discovered.



## Tools of the Trade

THESE EXAMPLES of data visualization tools from Visual Insights let users look for patterns, links and anomalies in data sets. A digital dashboard (at right) provides a broad business view by letting analysts view and compare several sets of business metrics on one screen.



visualization tools built in to Cognos PowerPlay. "Visualizing data really helps us pinpoint data anomalies and intuitively see what's happening in the data," he says.

The tools have been particularly helpful for analyzing canceled orders and returns, he says. Business analysts drill

into graphs and models to see the underlying cause of their results.

"Say, for example, we're getting lots of items returned from retailers," Dell'Antonio explains. "We can drill into the visual model for the data about what plants made the items that are being returned. If they

primarily came from one plant, then we may have a manufacturing problem. But if the returns are coming primarily from one retailer, then we know we don't have a product quality issue, but instead might need to talk to that customer. This type of analysis used to take us days and days to do.

## JUST THE FACTS

### Top Vendors

- Visual Insights (a Lucant spin-off)
- Silicon Graphics Inc.
- Cognos Inc.
- DataVista Inc.
- EpiGraph Inc.
- Quadstone Ltd.
- MapInfo Corp.
- Environmental Systems Research Institute Inc.
- MathSoft Inc.
- Spotfire Inc.

Now it can take minutes."

■ Data visualization has solved a lot of headaches at once for us," says Carl Lockshin, a researcher in the drug discovery division at **Sapra Corp.** Inc., a Marlboro, Mass.-based pharmaceutical company that uses data tools from Spotfire Inc. in Cambridge, Mass. Without Spotfire, Lockshin says, he would have to query the database for a single answer at a time, then compare results in a spreadsheet-based graph. That wouldn't make it easy to see the patterns and connections that turn up with data visualization tools.

■ **Dominio's Pizza Inc.** doesn't have a huge installation of visualization tools yet, but it's considering providing more for its business analysts, says **Timothy Montheit**, senior vice president of information services at Dominio's in Ann Arbor, Mich.

High on Montheit's list of potential visualization tools are digital dashboards, which provide analysts with a broad view of business activities by putting several data models on one screen. This type of application "could become integral to how [our analysts] operate," Montheit says. ■

## MORE ONLINE

For more information on data visualization, visit our Web site:  
[www.computerworld.com/news](http://www.computerworld.com/news)

■ Are there technologies or issues you would like to learn about in *QuickStudy*? Please send your ideas to [quickstudy@computerworld.com](mailto:quickstudy@computerworld.com).

# THE Hacker IN ALL OF US

In which our intrepid reporter learns how easy it is to suck the guts out of a victim's server — and how much fun it is  
By Deborah Radcliff

"HOW DO YOU SPELL pillage?" asks Fred Norwood, manager of information infrastructure technology at El Paso Energy Corp. in Houston.

Twelve of us had just hacked Microsoft Corp.'s crown jewel — a Windows NT box — and were copying passwords to our hard drives.

From across the room, a quick-witted Sam Gerard, data security manager at Motorola Inc., spells out the answer for us: "F-U-N?"

Thus goes Day 2 of Extreme Hacking, a course taught by security whiz kids at Ernst and Young LLP's towering Houston offices.

For four days, network managers, auditors and security specialists from companies such as Motorola, Electronic Data Systems Corp. and State Farm Insurance switched to the dark side. In so doing, they learned just what they're up against in their fight to keep crackers out of their networks.

The truth is, hacking is easy. And, well, fun. We pushed

open server doors and helped ourselves to whatever data we wanted — all without any feeling of culpability.

"This course gives me a lot more insight into the mentality and capability of attackers," says John McGraw, a security technology planner at a large computing services company.

"We know all these vulnerabilities, but there are probably so many more that no one knows about."

So fun was it that I was sorry to leave the capture-the-flag game at the end of Day 3. But my cab to the airport was waiting 20 floors below. By then, I had leapfrogged to the fourth and final victim Unix server and was closing in on that flag. But I had a plane to catch.

## Day 1: Finding The Goods

On Day 1, we case our victim. Our instructor, Stuart McClure, prefers the more sanitized term "discovery."



We begin discovery by finding publicly available information on the Internet. McClure talks about searching the Securities and Exchange Commission (SEC) Web site to get a thumbnail sketch of a company and its affiliates, laboratories and acquisitions. We could use this information to break in to

a company by hacking its acquisitions or subsidiaries because those subnetworks aren't usually as well monitored or secure as networks at the home office.

But for expediency's sake we bypass the SEC and go straight to the InterNIC Registrar, the service that assigns domain

names. By querying InterNIC with a simple "whois" command, we get all the IP address of our victim's Web servers — along with company nicknames — and auxiliary domain name servers (DNS) in affiliates and laboratories. We even find out what type of servers they are (the main DNS is a Sun-3/180 running Unix), along with the names and phone numbers of the server administrators.

I flash to the infamous cracker, Kevin Mitnick, who loved this little InterNIC feature. He'd call those network administrators and try to "social engineer" (sweet-talk) them out of network information.

"It's amazing the amount of

many servers, and Name Service lookup — a utility used to look up the IP address of a name like [www.microsoft.com](http://www.microsoft.com) against some of the IP addresses we've just gleaned. We soon have a list of domain names and IP addresses of all the machines connected to our victim network.

Next, we use traceroute (another administrative tool, which traces the route between a source and destination) to view the network topology and identify potential access control devices like routers and firewalls, which we'll steer clear of.

Time to rattle some doors and call in some witnesses. McClure calls this "port-scan-

get to get a road map of open ports, along with the network protocols and application services they support.

At the top of our list, for example, we see: "Port 7: Open, protocol TCP, service Telnet." And so it goes for 10 other open ports on that machine alone.

The classroom buzzes with excitement.

I realize how removed I feel from the victim. It's chilling to think that there are hundreds, nay thousands, of other crackers from underground groups such as Global Hell who probably feel the same way.

## Day 2: The NT Root Dance

We're introduced to Eric Schultz, affectionately called a "Hoover" by his cronies. A Hoover can really shake the guts out of a victim machine, and Schultz, 31, proves he's worthy of his name.

We start by picking our target. Test servers are notorious for lax password controls and monitoring. Or we could sniff the mail server for user names and passwords. We decide to go for the backup domain controller — a separate physical server — where user names are stored and security is often forgotten because it's a backup.

We establish a null session (a Microsoft utility that allows services to communicate with one another without a user identification) with the victim server.

I feel like a ghost inside someone else's house. I can see everything — network services, password files, user accounts, even payroll. But I can't touch anything because null is only designed for interprocess communication.

For the victim, "the sad thing about Microsoft is it doesn't log any of this," Schultz explains.

We're itching to gain root access (the most privileged level of access). But first, we must log off and then back on as legitimate users in order to grab the password hashes (encoded passwords) and submit them to our ace password-cracking tool.

We get back in under the user name "backup" by guess-

ing the password (which is also "backup"). "Command completed successfully," the machine responds.

I ask Schultz whether raised awareness has pushed administrators to better monitor passwords. No, he says. Most networks are still chock-full of such easy-to-guess passwords.

Once in, we copy user files and encrypted password hashes onto our hard drive. We log off and hit the hashes with L0phtcrack and the even faster John the Ripper. Available on the Web, both tools test passwords against a dictionary of common passwords until they break open.

The tougher passwords may take a day, though, as they must be cracked one character at a time.

Within minutes, we've got more than 70% of plain-text passwords in our greasy little paws.

Microsoft's LAN Manager hashes are the worst from a victim standpoint because LAN Manager splits passwords into seven-character halves and uses a known constant to encrypt each half, says Schultz. Our cracking tools are programmed for this, so they kick out passwords much faster than they would in Unix.

And if the administrator disables LAN Manager, the NT box won't talk to any Windows 95 or 98 boxes, so it's a tough problem to solve.

Armed with our newfound passwords, we finally reach our goal for the day and back back into the machine at administrator level and get root control of our machine.

"What's the first thing you do when you gain root? You do the root dance," explains Ron Nguyen, another instructor. Push one arm up, jiggle your hips, put the other arm up, jiggle your hips and repeat until you get it out of your system.

For our reward, Nguyen hands out a red wallet card titled "20 Things to Do After You've Hacked Admin" (see box). But for the final step to our victims' faces, we hide our hacking tools in an alternate data stream behind a readme.txt file on the victim server. You could easily hide 10M bytes of hacker tools behind such a file without chang-

ing the file size, according to Schultz. The only way administrators can catch this is to set up audit logs that would alert them when disk space changes significantly.

## Day 3: Capturing The Unix Flag

"Hacking root is a state of mind." Thus begins our syllabus for Day 3. And we really are getting into this "state." We arrive at the class rubbing our hands in anticipation of breaking the venerable Unix.

Our instructor, former Air Force geek Chris Prossie, doesn't let us down.

We begin by repeating discovery and gaining entry in much the same way we did on NT. But Prossie wants to have a little fun. He's showing us how to corrupt the DNS server to reroute traffic to a phony IP address on an "evilcom" server where he can: a) grab information or b) reroute the message into oblivion.

He also shows us how to conduct common HTTP attacks like test-Common Gateway Interface, which forces the victim to give up files and directories with a single "get" command, and how to execute remote commands that would disable access controls. We install Trojan horses (executable code to do our bidding remotely) and punch open back doors so we can can back in using a Telnet terminal session without needing identifications or passwords.

Then we play capture the flag by fingerprinting among four Unix boxes. And this, I'm afraid, is where I was so rudely interrupted by my awailing taxi.

Suffice it to say, we learned our lessons.

Network and security managers have a tough row to hoe. Bullet-proof security is a misnomer. And managing security risk is the best anyone can hope for.

We also learned that there's a little bit of hacker in all of us. And by cultivating this hacker within, information security professionals can better fight the cracker without. ▀

*Radcliffe is a freelance writer in Santa Rosa, Calif.*

## 20 Things to Do After You've Hacked Admin\*

1. Disable auditing
2. Grab the password file
3. Create an "administ" (hacker tool)
4. Enumerate server information
5. Enumerate secrets of LSA (Windows NT's Local Security Authority in the registry where password hashes are kept)
6. Dump registry info
7. Use Nltest (a tool that queries NT servers remotely)
8. Filter the bus
9. Add an administrator account
10. Grab a remote command shell
11. Hack the graphical user interface
12. Disable Password (NT's password policy settings)
13. Install a back door
14. Install Trojan horses and sniffers
15. Repeat
16. Hide the administ (so you can use the machine as a launch point to attack others)
17. Enable auditing
18. Eat a nice meal

\*There are really only 18.  
Source: Ernst & Young LLP, Houston

information you can get from the Internet. You don't realize you're hanging out there as exposed as you are," says El Paso Energy's Norwood.

We deploy a few common network troubleshooting tools (like zone transfers — normally used to correlate data between the backup and pri-

mary servers, and Name Service lookup — a utility used to look up the IP address of a name like [www.microsoft.com](http://www.microsoft.com)) against some of the IP addresses we've just gleaned. We soon have a list of domain names and IP addresses of all the machines connected to our victim network.

I'm particularly taken with the stealthy Nmap, a utility for network mapping available for free off the Web. We deploy Nmap against our primary tar-



The front page of the inform



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## Technology Happenings

**Intel Corp.** releases the **80486 microprocessor**, which has an optimized instruction set, with an on-chip internal instruction and data cache and an optional on-chip floating-point unit.

**Jaron Lanier** forms **VPL Research Inc.** to create and market virtual reality systems for a variety of applications, including alternative input devices such as the Data Glove, Data Suit and EyePhone.

**Music releases** **Smiley's** a video game that allows the user to create a city.



**Sun Microsystems Inc.** introduces the **SparcStation** line of workstations based on its Scalable Process Architecture.

**The concept of virtual reality** is a hot topic at **Diagraph's** convention in Boston.

**Hewlett-Packard Co.** acquires **Amelia Computer** for \$476 million.

**Computer Associates International Inc.** acquires **Cullinet Software Inc.** for \$333 million.

**The Dow & Bradstreet Corp.** acquires **Management Science America Inc.** for \$333 million.

**World chess champion Gary Kasparov** defeats **Carnegie Mellon University's** chess-playing program, **Deep Thought**.

**The National Education Association** publishes a report that recommends that there be a computer on every teacher's desk by the year 1999.

**Top five software companies of 1989** (by revenue):  
 • Microsoft Corp.  
 • Lotus Development Corp.  
 • Ashton-Tate Corp.  
 • WordPerfect Corp.  
 • Autodesk Inc.

## Other Notables

**Best Picture:** *Driving Miss Daisy*

**Holzer Peace Prize winner:** The **Dalit Lama**

In May, the **Dow Jones Industrial Average** passes 2,500 points for the first time since the 1967 crash.

**Flashback** is produced with the assistance of The Computer Museum History Center in Mountain View, Calif.

# Good Things Come In Portable Packages

BY MARY BRANDEL

**T**ODAY, IT'S NOT TOO futuristic to talk about computers that you wear. But 10 years ago, it was just becoming possible to pack a 7-lb. notebook in your suitcase.

In 1989, debuts included Compaq Computer Corp.'s 7-lb. LTE/286, Toshiba Corp.'s 6-lb. model, Apple Computer Inc.'s Portable Mac, Poquet Computer Corp.'s 1-lb. pocket-size IBM-compatible computer and Grid Systems Corp.'s laptop computer with a touch-sensitive pad that was designed to recognize handwriting.

In fact, if you counted all

today — was introduced in 1979 by Grid, weighing a then-light 15 lbs. The 23.5-lb. luggable from Osborne Computer Corp. arrived in 1981, followed by just-as-powerful, battery-powered 15- to 20-lb. portables from several vendors in the mid-1980s.

Still, to get the lower weights in 1989, early users had to put up with a lot. Save for the newest Compaq model, most notebooks were based on low-powered chips such as Intel Corp.'s 8088 or 8086. Few offered built-in hard drives, and 1M-byte RAM was the norm.

Even if you were willing to carry a heavier machine, hard

Today, with screens at least three inches wider and hard drives with more than 50 times as much capacity, you typically get 32M to 64M bytes of RAM, plus 50 Kbit/sec. modems and 266-MHz Pentium chips, all in the 7-to-9-lb. range and down to 4 or 5 lb. — if you're willing to give up some functionality.

There also wasn't the kind of corporate IT support for notebook or laptop users that there is today, not to mention e-mail or network connections back to headquarters.

Despite the drawbacks, mobile workers and the general public were mesmerized. In fact, the mobile revolution "started with sales guys saying, 'I could double my quota if I had my own damn notebook,'" Brown says.

## Growing Enthusiasm

Although few companies in 1989 bought portables for their employees, that started to change in the early 1990s. Early adopters included pharmaceutical giant Upjohn Co., which equipped more than 1,000 salespeople with Grid 1520 laptops, and Price Waterhouse LLP in New York, which chose IBM and Compaq models for its accountants, according to a 1990 article in *USA Today*.

The enthusiasm was tangible at the fall Comdex show in 1990. According to Bryan Mason, who was an engineer at Poquet at the time, "there were people standing around our booth three to four layers deep, blocking the walkways." Curiosity was high regarding the

pocket-size PC that promised 100 hours of life on two AA batteries. It could run desktop applications, as long as you didn't mind using a much smaller keyboard than that of a normal computer. It was even equipped with MS-DOS and some basic programs like text-editing and a calendar, and users could insert cards to load applications like Lotus 1-2-3.

Because the Poquets were so small, "they were difficult to manufacture and almost impossible to repair," Mason says. The night be-

fore Comdex, in fact, "we were in the hotel room with X-acto knives, taking the keys out and scraping the plastic off to make sure they fit right. The test was, you would rub your hand across the keyboard, and if no keys popped out, it was pretty good."

Poquet never gained broad market support at a list price close to \$3,000. Still, the Poquet was the predecessor to later systems such as 3Com Corp.'s PalmPilot, released in 1996. It also sowed the seeds for what are now known as PC Cards, which have played an integral role in adding more functionality to notebook computers.

Other advances in mobile computing happened quickly, helping to build the notebook market rapidly. By the early 1990s, "suddenly you could do a regular notebook," Brown says. Fully functional notebooks "were under 10 lb. and going to 7" 9

Brandel is a frequent contributor to *ComputerWorld*. Contact her at [brandel@morfolk-county.com](mailto:brandel@morfolk-county.com).



**BY 1989, PORTABLES WERE MORE REASONABLE IN SIZE: THE 6-LB. TOSHIBA MODEL (AT LEFT) VS. THE 23.5-LB. OSBORNE IN 1981**

types of devices — transportables, luggables, laptops, notebooks and handhelds — the portable PC market by 1990 was growing three to four times as fast as the desktop PC market, according to International Data Corp. in Framingham, Mass.

Even though portables had been around for 10 years, the market hadn't experienced that kind of widespread growth before. Previous portables had been much heavier. One of the first "clamshell-style" portables — the style we have grown accustomed to

drives topped out at 40M bytes. Keyboards were quirky and uncomfortable. Heavy nickel cadmium batteries promised three hours of unplugged usage. Expansion slots were few. Displays were almost all monochrome with 640- by 480-pixel VGA resolution, with the lightest models shipping with Color Graphics Adapter. "They were not even black-and-white," says Kimball Brown, vice president and chief analyst at Dataquest in San Jose. "They were more like blue and light-blue."

**Exxon Valdez runs aground in Alaska's Prince William Sound and spills 11 million gallons of crude oil.**

**Hurricane Hugo slams into Charleston, S.C., with winds of up to 135 mph.**

**The Berlin Wall comes down.**

JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

**Hundreds are killed during the Tiananmen Square protests.**

**President George Bush orders U.S. troops to invade Panama and oust Manuel Noriega.**

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Monday, October 18, 1999

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### A Full Schedule of Contemporary Topics

- 7:45am **Continental Breakfast & Conference Registration**
- 8:30am **General Session: How Well Do You Know How to Recruit on the Internet** Judy West, Author of Cyberspace - Jealously Guarded Recruiting Methods
- 10:00am **Sponsor Showcase/Coffee Break**
- 10:45am **General Session: Sourcing Techniques** Cathy Peterson, Romac International
- 12:00pm **Luncheon Keynote: Immigration Issues** Harry J. Joe, Esq., Jenkins & Gilchrist
- 1:30pm **General Session: Silent Impact: The Basic Tenets of Staffing & Bottom Line Effects** Dan Hanyzewski, Mastech Corp.
- 2:45pm **Sponsor Showcase/Coffee Break**
- 3:30pm **General Session: Cutting Edge Tools for the Internet Recruiter** Dr. Bret Hollander, NETRECRUITER
- 5:00pm **Program ends**

### Selected sessions include:



#### Immigration Issues

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# Project Management: Post Y2K

**Forget what you've heard about Y2K being a career killer. The experience can be the stepping-stone to more strategic IT work for project managers**  
By Candee Wilde

**I**F THERE ARE TWO skills that year 2000 project managers say they've learned, they are how to meet an immovable deadline and how to manage a multilevel — and frequently global — project. But where will members of this endangered species apply their knowledge after Y2K remediation and testing are history?

The answer may be the same as the punch line of that old joke about where gorillas sit: anywhere they want. Assuming their Y2K work proves successful, these project managers may be going in any direction they like. After all, fixing date-related programming problems that might confound or even crash some computer systems is arguably the highest-profile information technology project in history.

But successful Y2K project managers, and even their teammates, might be only short-term heroes. Therefore, they should quickly take ad-

vantage of their place in the limelight to steer their careers toward promising and strategic IT work. The best opportunities will be in Internet-related projects such as application development or e-commerce and in IT quality assurance, according to Richard Wonder, president of IT recruiting firm Richard Wonder & Associates Inc. in New York.

"Superficially, it might seem that Y2K managers will have a problem after the year 2000," Wonder says. "But if you dig in, you see the skills they have will help them find employment next year. Y2K professionals have been knee-deep in systems testing, application development, quality assurance and applications re-engineering."

Wonder suggests that today's Y2K managers build their Internet skills as much as they can while their projects near completion. "As enterprises develop electronic-commerce sites and Internet front ends, they need applications engi-

neers and quality assurance professionals who have some Internet knowledge or can learn it," he says. "Next year, a lot of the people who were on Y2K projects will be on Internet projects."

That prediction is already true for Kyle Duncan, senior director of the year 2000 project office at Kelly Services Inc., an international staffing company in Troy, Mich. Duncan is already working on a Web-based system that will be used by Kelly temporary employees worldwide to report the number of hours they work.

As Y2K winds down, Duncan is talking to the members of his Y2K team about their future careers. Kelly is committed to placing its Y2K people in jobs they can succeed at, even if it means additional training. "We're taking some of the legacy people that helped with Y2K and training them to work in a client/server environment," Duncan says.

Just as Y2K project success can benefit IT professionals who stay at their company, it can boost the careers of those who choose to move on, says C. Mitchell George, year 2000 project manager at Kemper Insurance Cos. in Long Grove, Ill. George, who is accepting an early retirement package from Kemper, where he has worked for 35 years, plans to seek a position at another company as an enterprise architect.

By managing a large, matrix-style operation, George says he has learned to "manage across another manager." The ability to supervise a person who reports to another manager is essential to an enterprise architect whose projects often require assistance from employees whose primary jobs are in other functional areas. George says managing Y2K also taught him how to work on a variety of tasks concurrently and to manage separate but interdependent projects.

Although year 2000 projects haven't centered on the newest technologies or state-of-the-art systems, they aren't a detour on the road to career goals. Instead, Y2K project management has been a skill-building opportunity that will never be repeated. ■

Wilde is a freelance writer in Connecticut. She can be reached at cwilde@comix.com.

## Year 2000 Project Managers Aren't One-Trick Ponies

Once Kelly Services shuts down its year 2000 office, Kyle Duncan's new title will be senior director of field automation. He will be responsible for IT groups in several corporate divisions: administration, marketing and professional/technical staffing alternatives. Here are his thoughts on how leaving a Y2K project on a related can benefit both project leaders and staffers as they plan for the future.

**Y2K lessons:** "The biggest skill I acquired is the ability to manage a global project. In accordance with a variety of initiatives, I learned how to run a project in the United Kingdom, for example, and how to deal with the culture in Russia. Y2K is a project-management project, not a very technical project, so I've proved my ability to organize, stay focused, follow up and meet a deadline. I developed better people-management skills."

**Y2K spin doors:** "We have the complete IT inventory for Kelly, both corporate and global. So if we work on a project in France, I know they run AS/400s with certain applications. Understanding their environment can save project development time. Also, we have built relationships with people throughout Kelly's infrastructure — with the network people, the data center people and so on. I will leverage these relationships in my new projects."

**Y2K career builders:** "I found out that I'm very driven. I ran a multi-million-dollar global Y2K project and was on time and under budget. I proved I could develop work plans, follow up and manage resources. I don't have time to understand how to solve the world's issues, but I know how to accomplish a task without moving the deadline. Traditionally, IT projects have been over budget and behind schedule, but they don't have to be. I've answered my ability to stay focused on a job until I get it done."

— Candee Wilde



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# MCI Bid Boosts IT *and* Sprint

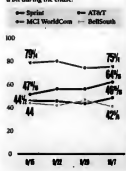
## Analysts show strong support for acquisition

BY DAVID GREENSTEIN

**A**LL THAT financial analysts seem to be asking about MCI WorldCom Inc.'s \$129 billion bid for Sprint Corp. is, "What's not to like?"

## Sprinting Ahead

Sprint stock has risen sharply during the past few weeks as analysts marked it as a takeover target. Its suitors, MCI WorldCom and BellSouth, have sagged a bit during the chase.



plan for MCI WorldCom (Nasdaq:WCOM) is Sprint's (NYSE:FON) personal communications services wireless system, which has been racking up new customers at a record pace, says William Benton, an analyst at William Blair & Co. in Chicago. MCI WorldCom hasn't had its own wireless com-

Benton says. Now, "it's a dead-ly set of assets that WorldCom has put together," he says.

"It's a great strategic merger," agrees Joseph Eshoo, an analyst at A. G. Edwards & Sons Inc. in St. Louis. Like Benton, he says Sprint's wireless system is arguably the best one out there.

But Eshoo and Benton part ways on what the combination will do for MCI WorldCom shareholders. Benton predicts that the now-whole MCI WorldCom will be able to grab more than its share of telecommunications business. Eshoo says the combination only means that the companies, which had been overpriced separately, now merit their current valuations.

A prominent wild card in the deal is the stringent regulatory review that the Federal Communications Commission Chairman William Kennard promises. Eshoo says MCI WorldCom will probably have to sell off Sprint's Internet assets, as MCI and WorldCom had to do when they merged last year to get the approval of the European Commission.

But Benton says regulators have no legitimate fault to find in this week's announced merger. Not only is AT&T still a massive powerhouse, but the deal will also likely pave the way for the Baby Bells to jump into the long-distance market as well, he says. ■

RANK		NAME	2007 7/10	2006 7/10	NET WORTH	CEO	COMPANY	2007 7/10	2006 7/10	NET WORTH
<b>WORLDWIDE</b>										
1	1	Bill Gates	100	100	\$126.1	100	100	100	100	\$126.1
2	2	Warren Buffett	99	99	\$105.5	99	99	99	99	\$105.5
3	3	Carlos Slim Helu	98	98	\$93.5	98	98	98	98	\$93.5
4	4	Michael Bloomberg	97	97	\$92.5	97	97	97	97	\$92.5
5	5	Mark Zuckerberg	96	96	\$85.4	96	96	96	96	\$85.4
6	6	John Marsden	95	95	\$84.5	95	95	95	95	\$84.5
7	7	Jeff Bezos	94	94	\$83.5	94	94	94	94	\$83.5
8	8	Michael Dell	93	93	\$82.5	93	93	93	93	\$82.5
9	9	Steve Ballmer	92	92	\$82.5	92	92	92	92	\$82.5
10	10	Michael E. Compton	91	91	\$82.5	91	91	91	91	\$82.5
11	11	Michael E. Dell	90	90	\$82.5	90	90	90	90	\$82.5
12	12	Michael E. Dell	89	89	\$82.5	89	89	89	89	\$82.5
13	13	Michael E. Dell	88	88	\$82.5	88	88	88	88	\$82.5
14	14	Michael E. Dell	87	87	\$82.5	87	87	87	87	\$82.5
15	15	Michael E. Dell	86	86	\$82.5	86	86	86	86	\$82.5
16	16	Michael E. Dell	85	85	\$82.5	85	85	85	85	\$82.5
17	17	Michael E. Dell	84	84	\$82.5	84	84	84	84	\$82.5
18	18	Michael E. Dell	83	83	\$82.5	83	83	83	83	\$82.5
19	19	Michael E. Dell	82	82	\$82.5	82	82	82	82	\$82.5
20	20	Michael E. Dell	81	81	\$82.5	81	81	81	81	\$82.5
21	21	Michael E. Dell	80	80	\$82.5	80	80	80	80	\$82.5
22	22	Michael E. Dell	79	79	\$82.5	79	79	79	79	\$82.5
23	23	Michael E. Dell	78	78	\$82.5	78	78	78	78	\$82.5
24	24	Michael E. Dell	77	77	\$82.5	77	77	77	77	\$82.5
25	25	Michael E. Dell	76	76	\$82.5	76	76	76	76	\$82.5
26	26	Michael E. Dell	75	75	\$82.5	75	75	75	75	\$82.5
27	27	Michael E. Dell	74	74	\$82.5	74	74	74	74	\$82.5
28	28	Michael E. Dell	73	73	\$82.5	73	73	73	73	\$82.5
29	29	Michael E. Dell	72	72	\$82.5	72	72	72	72	\$82.5
30	30	Michael E. Dell	71	71	\$82.5	71	71	71	71	\$82.5
31	31	Michael E. Dell	70	70	\$82.5	70	70	70	70	\$82.5
32	32	Michael E. Dell	69	69	\$82.5	69	69	69	69	\$82.5
33	33	Michael E. Dell	68	68	\$82.5	68	68	68	68	\$82.5
34	34	Michael E. Dell	67	67	\$82.5	67	67	67	67	\$82.5
35	35	Michael E. Dell	66	66	\$82.5	66	66	66	66	\$82.5
36	36	Michael E. Dell	65	65	\$82.5	65	65	65	65	\$82.5
37	37	Michael E. Dell	64	64	\$82.5	64	64	64	64	\$82.5
38	38	Michael E. Dell	63	63	\$82.5	63	63	63	63	\$82.5
39	39	Michael E. Dell	62	62	\$82.5	62	62	62	62	\$82.5
40	40	Michael E. Dell	61	61	\$82.5	61	61	61	61	\$82.5
41	41	Michael E. Dell	60	60	\$82.5	60	60	60	60	\$82.5
42	42	Michael E. Dell	59	59	\$82.5	59	59	59	59	\$82.5
43	43	Michael E. Dell	58	58	\$82.5	58	58	58	58	\$82.5
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45	45	Michael E. Dell	56	56	\$82.5	56	56	56	56	\$82.5
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47	47	Michael E. Dell	54	54	\$82.5	54	54	54	54	\$82.5
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49	49	Michael E. Dell	52	52	\$82.5	52	52	52	52	\$82.5
50	50	Michael E. Dell	51	51	\$82.5	51	51	51	51	\$82.5
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42	42	Michael E. Dell	59	59	\$82.5	59	59	59	59	\$82.5
43	43	Michael E. Dell	58	58	\$82.5	58	58	58	58	\$82.5
44	44	Michael E. Dell	57	57	\$82.5	57	57	57	57	\$82.5
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NYSE	21.14	WTI	44.40	HKD	1.00
NYSE	21.14	WTI	44.40	TWD	1.00
NYSE	21.14	WTI	44.40	NTD	1.00
NYSE	21.14	WTI	44.40	JPY	100.00
NYSE	21.14	WTI	44.40	CNY	1.00
NYSE	21.14	WTI	44.40	USD	1.00
NYSE	21.14	WTI	44.40	EUR	1.00
NYSE	21.14	WTI	44.40	GBP	1.00
NYSE	21.14	WTI	44.40	JPY	100.00
NYSE	21.14	WTI	44.40	AUD	1.00
NYSE	21.14	WTI	44.40	CAD	1.00
NYSE	21.14	WTI	44.40	CHF	1.00
NYSE	21.14	WTI	44.40	SEK	1.00
NYSE	21.14	WTI	44.40	NOK	1.00
NYSE	21.14	WTI	44.40	DKK	1.00
NYSE	21.14	WTI	44.40	PLN	1.00
NYSE	21.14	WTI	44.40	CZK	1.00
NYSE	21.14	WTI	44.40	HUF	1.00
NYSE	21.14	WTI	44.40	RON	1.00
NYSE	21.14	WTI	44.40	BGN	1.00
NYSE	21.14	WTI	44.40	MDL	1.00
NYSE	21.14	WTI	44.40	LEU	1.00
NYSE	21.14	WTI	44.40	TRY	1.00
NYSE	21.14	WTI	44.40	ILS	1.00
NYSE	21.14	WTI	44.40	EGP	1.00
NYSE	21.14	WTI	44.40	SAR	1.00
NYSE	21.14	WTI	44.40	QAR	1.00
NYSE	21.14	WTI	44.40	KWD	1.00
NYSE	21.14	WTI	44.40	BHD	1.00
NYSE	21.14	WTI	44.40	OMR	1.00
NYSE	21.14	WTI	44.40	JOD	1.00
NYSE	21.14	WTI	44.40	LBP	1.00
NYSE	21.14	WTI	44.40	SYP	1.00
NYSE	21.14	WTI	44.40	IRR	1.00
NYSE	21.14	WTI	44.40	AFN	1.00
NYSE	21.14	WTI	44.40	PKR	1.00
NYSE	21.14	WTI	44.40	INR	1.00
NYSE	21.14	WTI	44.40	BID	1.00
NYSE	21.14	WTI	44.40	BDT	1.00
NYSE	21.14	WTI	44.40	MYR	1.00
NYSE	21.14	WTI	44.40	THB	1.00
NYSE	21.14	WTI	44.40	VND	1.00
NYSE	21.14	WTI	44.40	PHP	1.00
NYSE	21.14	WTI	44.40	IDR	1.00
NYSE	21.14	WTI	44.40	SGD	1.00
NYSE	21.14	WTI	44.40	HKD	1.00
NYSE	21.14	WTI	44.40	TWD	1.00
NYSE	21.14	WTI	44.40	NTD	1.00
NYSE	21.14	WTI	44.40	JPY	100.00
NYSE	21.14	WTI	44.40	CNY	1.00
NYSE	21.14	WTI	44.40	USD	1.00
NYSE	21.14	WTI	44.40	EUR	1.00
NYSE	21.14	WTI	44.40	GBP	1.00
NYSE	21.14	WTI	44.40	JPY	100.00
NYSE	21.14	WTI	44.40	AUD	1.00
NYSE	21.14	WTI	44.40	CAD	1.00
NYSE	21.14	WTI	44.40	CHF	1.00
NYSE	21.14	WTI	44.40	SEK	1.00
NYSE	21.14	WTI	44.40	NOK	1.00
NYSE	21.14	WTI	44.40	DKK	1.00
NYSE	21.14	WTI	44.40	PLN	1.00
NYSE	21.14	WTI	44.40	CZK	1.00
NYSE	21.14	WTI	44.40	HUF	1.00
NYSE	21.14	WTI	44.40	RON	1.00
NYSE	21.14	WTI	44.40	BGN	1.00
NYSE	21.14	WTI	44.40	MDL	1.00
NYSE	21.14	WTI	44.40	LEU	1.00
NYSE	21.14	WTI	44.40	TRY	1.00
NYSE	21.14	WTI	44.40	ILS	1.00
NYSE	21.14	WTI	44.40	EGP	1.00
NYSE	21.14	WTI	44.40	SAR	1.00
NYSE	21.14	WTI	44.40	QAR	1.00
NYSE	21.14	WTI	44.40	KWD	1.00
NYSE	21.14	WTI	44.40	BHD	1.00
NYSE	21.14	WTI	44.40	OMR	1.00
NYSE	21.14	WTI	44.40	JOD	1.00
NYSE	21.14	WTI	44.40	LBP	1.00
NYSE	21.14	WTI	44.40	SYP	1.00
NYSE	21.14	WTI	44.40	IRR	1.00
NYSE	21.14	WTI	44.40	AFN	1.00
NYSE	21.14	WTI	44.40	PKR	1.00
NYSE	21.14	WTI	44.40	INR	1.00
NYSE	21.14	WTI	44.40	BID	1.00
NYSE	21.14	WTI	44.40	BDT	1.00
NYSE	21.14	WTI	44.40	MYR	1.00
NYSE	21.14	WTI	44.40	THB	1.00
NYSE	21.14	WTI	44.40	VND	1.00
NYSE	21.14	WTI	44.40	PHP	1.00
NYSE	21.14	WTI	44.40	IDR	1.00
NYSE	21.14	WTI	44.40	SGD	1.00
NYSE	21.14	WTI	44.40	HKD	1.00
NYSE	21.14	WTI	44.40	TWD	1.00
NYSE	21.14	WTI	44.40	NTD	1.00
NYSE	21.14	WTI	44.40	JPY	100.00
NYSE	21.14	WTI	44.40	CNY	1.00
NYSE	21.14	WTI	44.40	USD	1.00
NYSE	21.14	WTI	44.40	EUR	1.00
NYSE	21.14	WTI	44.40	GBP	1.00
NYSE	21.14	WTI	44.40	JPY	100.00
NYSE	21.14	WTI	44.40	AUD	1.00
NYSE	21.14	WTI	44.40	CAD	1.00
NYSE	21.14	WTI	44.40	CHF	1.00
NYSE	21.14	WTI	44.40	SEK	1.00
NYSE	21.14	WTI	44.40	NOK	1.00
NYSE	21.14	WTI	44.40	DKK	1.00
NYSE	21.14	WTI	44.40	PLN	

[illegible]

2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887	1886	1885	1884	1883	1882	1881	1880	1879	1878	1877	1876	1875	1874	1873	1872	1871	1870	1869	1868	1867	1866	1865	1864	1863	1862	1861	1860	1859	1858	1857	1856	1855	1854	1853	1852	1851	1850	1849	1848	1847	1846	1845	1844	1843	1842	1841	1840	1839	1838	1837	1836	1835	1834	1833	1832	1831	1830	1829	1828	1827	1826	1825	1824	1823	1822	1821	1820	1819	1818	1817	1816	1815	1814	1813	1812	1811	1810	1809	1808	1807	1806	1805	1804	1803	1802	1801	1800	1799	1798	1797	1796	1795	1794	1793	1792	1791	1790	1789	1788	1787	1786	1785	1784	1783	1782	1781	1780	1779	1778	1777	1776	1775	1774	1773	1772	1771	1770	1769	1768	1767	1766	1765	1764	1763	1762	1761	1760	1759	1758	1757	1756	1755	1754	1753	1752	1751	1750	1749	1748	1747	1746	1745	1744	1743	1742	1741	1740	1739	1738	1737	1736	1735	1734	1733	1732	1731	1730	1729	1728	1727	1726	1725	1724	1723	1722	1721	1720	1719	1718	1717	1716	1715	1714	1713	1712	1711	1710	1709	1708	1707	1706	1705	1704	1703	1702	1701	1700	1699	1698	1697	1696	1695	1694	1693	1692	1691	1690	1689	1688	1687	1686	1685	1684	1683	1682	1681	1680	1679	1678	1677	1676	1675	1674	1673	1672	1671	1670	1669	1668	1667	1666	1665	1664	1663	1662	1661	1660	1659	1658	1657	1656	1655	1654	1653	1652	1651	1650	1649	1648	1647	1646	1645	1644	1643	1642	1641	1640	1639	1638	1637	1636	1635	1634	1633	1632	1631	1630	1629	1628	1627	1626	1625	1624	1623	1622	1621	1620	1619	1618	1617	1616	1615	1614	1613	1612	1611	1610	1609	1608	1607	1606	1605	1604	1603	1602	1601	1600</
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FRANK HAYES/FRANKLY SPEAKING

# Innovation time?

**W**HEN'S THE RIGHT TIME to be innovative? Hey, let's face it, we love trying new stuff. Innovation is challenging, exciting and fun. Standards, on the other hand, are boring. But in almost any IT project, figuring out when to innovate — and when to do the opposite, to standardize — can spell the difference between success and failure.

The rule is simple: You innovate to add capability. You standardize to cut costs. And if you don't use IT innovation and standardization at the right times, you won't get the business results you want.

We all know the standardization mantra. We buy off-the-shelf commodity products that work together out of the box. We put standardized software and hardware on users' desks. We use network and e-commerce standards that let us connect easily with customers and suppliers.

This one-size-fits-all approach doesn't usually deliver exactly what users or business partners or even IT people need. That's not why we use it. We use it because standardized products are cheaper. They roll out faster. They're easier to maintain. In almost every way, they drive down the cost of IT.

But standardization gives you no advantage in capability over your competitors. By definition, if it's standardized, the other guys have access to exactly the same technology you have. All standardization can do is cut costs — for you and competitors alike.

The flip side is innovation: doing what's different, specialized — in short, nonstandard. Innovation is how you deliver exactly the features your users and suppliers and customers need, with custom systems, unique capabilities, maybe even one-off hardware.

But innovation is expensive. It's not just that custom costs more than commodity. It's that when you're creating genuinely new systems, you don't know exactly what you're doing. You'll hit blind alleys, make wrong guesses, have to backtrack. The payoff comes if, in the end, users can do things that leapfrog the competition and do more business. But innovation won't save money.

So which is the right choice? It all depends on what you're trying to accomplish. If your management expects lower IT costs, don't pitch

innovation. If the boss wants a competitive advantage, don't look for it through standardization.

Say you're putting in an ERP system. If your goal is to save money, make it as standard as possible — default configuration, first-track installation. You'll get it in place faster, need fewer ERP specialists and upgrade more easily. True, standardization is boring, but it's cheaper.

(Besides, sometimes just getting an ERP system to work is exciting enough.)

But to deliver special features that give users more business leverage, you'll have to do lots of configuring and tuning, as well as build extra pieces yourself. That innovation will cost more — in time, effort and consulting fees — but for that higher price, you'll get new capabilities.

Or maybe it's an e-commerce project. A tried-and-true, well-tested product will go in with no expensive surprises for customers. Something more innovative might deliver more business — but at a higher cost in dollars, sweat and time.

Sure, you can mix and match — say, building a custom system on garden-variety PCs and networks, or rolling out wireless handhelds that communicate with standard back-end servers using standard protocols like HTTP.

Just make sure innovation and standards produce the systems you're supposed to be making — whether that means making it great or keeping it cheap. ■

Hayes, Computerworld's staff columnist, has covered IT for 20 years. His e-mail address is frank\_hayes@computerworld.com.

## SHARK TANK

**SO CHARLES**, the IT director at a Texas manufacturer, noticed that IBM was telling him for a "feature" he didn't recognize. To the tune of \$13,000 a month. He poked around, found he British ERP VAR had switched an operating system update charge from its own tab to his. Neither the VAR nor IBM had thought to talk this over with Charles (who eventually worked things out). To these vendors, a busy \$13,500 a month barely covers one presales consultant's power-laminate receipts. The Tank appreciates the reminder. Keep scanning those invoices.

"THEY HAD an opportunity to come clean... and instead they lied coming into the closet." That's Jason Carlett, president of the privacy group, Jumbucks, talking about Microsoft's tight lips regarding the "independent" audit it commissioned on the August Internet security foul-up. Which only affected 40 million or so users. Gee, Redmond, we don't need every little detail — but would it kill you to reveal the name of the auditing company?

**YOUR TAX DOLLARS AT WORK** The U.S. Office of Personnel Management has a guidebook on managing federal Y2K employees ([www.opm.gov/y2k](http://www.opm.gov/y2k)). Quote: "The Y2K staff may be different... Many come from the computer programming community, [which] values intelligence, adaptability, education and the capacity for creative problem-solving. They derive

deep personal satisfaction from their work and are personally affected by failure." Guess they needed a manual for managing employees with such unusual (in a bureaucratic) characteristics.

**THIS IS THE MODERN WORLD** Online retailer Living.com has offices in Texas and North Carolina. Its corporate systems are at a server-hosting facility in Silicon Valley. "There's only two people in the company who have ever seen our hardware," says Andrew Kass, the company's director of technology. Kass figures he's traveled to California all of five times since April to make sure the servers were, um, serving.

**SHARK'S BEEN WONDERING** about the top-secret strategies, research and due diligence that go into these megamergers. Not to worry. Bernard Ebbers, MCI WorldCom's wild-man CEO, last week told all about his operation's layout of Sprint. Company officials "smiled each other's body odor," Ebbers said, "and decided they liked each other's discretion." Figure it was something like that.

**How's your sniffer working?** Do you detect the unmistakable odor of flapping vendors? Queueless bazookas? Raise a stink [sharky@computerworld.com](http://sharky@computerworld.com). There's a T-shirt in it for you if your item runs. And start each day with the aroma of fresh Shark at [computerworld.com/sharky](http://computerworld.com/sharky).

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